CONFIGURATION MIGRATION TOOL

FortiConverter User Guide

VERSION 5.1.0

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July 20, 2016

FortiConverter 5.1.0 User Guide

1st Edition

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Introduction

This document shows how to install and use FortiConverter.

FortiConverter is designed to help you migrate your network to Fortinet network security solutions, significantly reducing workload and minimizing errors. FortiConverter translates configuration files from other vendors' firewall products into a valid FortiGate or FortiManager configuration file. Because the output uses command line syntax, it can either be uploaded as a configuration file or piped to the CLI.

For additional assistance, please contact fconvert_feedback@fortinet.com.

Submitting configuration files and retrieving private builds via SCP

FortiConverter customers can securely submit firewall configuration files to Fortinet Engineering using Fortinet's SCP (Secure CoPy) service.

You can use the same service to retrieve private builds that fix conversion logic, if required.

Because this account has many restrictions, Fortinet recommends that you use a command-line SCP client to transfer files. For example, PSCP provides a suitable SCP client for Windows users.

To upload a file

1. Create a zip archive with a name that is unique to your case (for example, your FortiConverter serial number).
2. Add your files to the zip archive, even if you have only one file to send.
3. Use your SCP client to connect to the secure server and upload the file using the following settings:

Server	ftp.apsecure.com
Port	2222
User	fcon-incoming
Password	incoming

For example, for PSCP:

```
.\pscp.exe -P 2222 fcon0123456789.zip fcon-incoming@ftp.apsecure.com:.
```

To download a file

1. Obtain the name of the file to retrieve from Fortinet Engineering (for example, `fcon-build-0123456789.exe`).
2. Use your SCP client to connect to the secure server and download the file using the following settings:

Server	ftp.apsecure.com

Port	2222
User	fcon-outgoing
Password	outgoing

For example, for PSCP:

```
.\pscp.exe -P 2222 fcon-outgoing@ftp.apsecure.com:fcon-build-0123456789.exe .
```

Supported vendors & configuration objects

FortiConverter can translate configurations from the following vendors and platforms.

In some cases, FortiConverter cannot translate some parts of the configuration because of dependencies or unsupported syntax and you must manually convert them.

If the number of objects exceeds the maximum valid length for FortiGate or FortiManager, FortiConverter trims them.

Vendor	Models	Versions	Convertible objects
Alcatel-Lucent	Brick	ALSMS v9.x	Addresses & Address Books Interfaces (physical, logical, loopback, PPPoE) Partitions Services & Service Books Static routes Zone rule set
Check Point	SmartCenter	NG FP1 (4.0) to NGX R77	Addresses & Address Groups Interfaces (Physical, Logical, Loopback, PPPoE) Local Users & Groups NAT (Automatic & Rule) Negate Cell Policies (rulebases.fws) RADIUS, TACACS+, & LDAP Rules Schedules Services & Service Groups Static routes VPN (IPSec)
	Provider-1	NGX R65 to R77	

Vendor	Models	Versions	Convertible objects
Cisco	PIX ASA FWSM	4.x to pre-8.3, 8.3 and later, 9.x	ACLs Addresses & Address Groups DHCP Servers DNS Servers Interfaces (Physical, Logical, Loopback, PPPoE, Tunnel) IP Pools Local Users & Groups NAT (including Object NAT and Double NAT) RADIUS, TACACS+, & LDAP Services & Service Groups Static Routes Time Ranges VPN (IPSec, PPTP/L2TP, EZVPN)
	IOS	10.x to 12.x 15.x	
Juniper	SSG	ScreenOS 5.x, 6.x	Addresses & Address Groups & FQDNs DHCP Servers & Clients & Relays Interfaces (Physical, Logical, Loopback, PPPoE, Tunnel) Static Routes Services & Service Groups Policies VIPs/MIPs NAT IP Pools VPN (IPSec, PPTP/L2TP) Local Users & Groups RADIUS & LDAP Zones
	SRX	Junos OS 10.x to 12.x	Addresses & Address Groups & FQDNs DHCP Servers & Client & Relay Interfaces (Physical, Logical, Loopback, PPPoE, Tunnel) IP Pools Local Users & Groups NAT Policies RADIUS & LDAP Services & Service Groups Static Routes VIPs/MIPs VPN (IPSec, PPTP/L2TP) Zones

Vendor	Models	Versions	Convertible objects
Palo Alto Networks	PA	PAN-OS 1.x to 6.x	Addresses & Address Groups & FQDNs Interfaces Local Users & Groups NAT (partial) Policies Schedules Static Routes Services & Service Groups Zones
SonicWall	NSA Serials	SonicOS Enhanced 5.x	Addresses & Address Groups & FQDNs DHCP Servers & Clients & Relays Interfaces (Physical, Logical, Loopback, PPPoE) Local Users & Groups NAT Policies Schedules Services & Service Groups Static Routes Zones

General limitations

FortiConverter is a migration tool, not a migration service. It is designed to be used as part of a properly planned migration process.

Supported FortiOS conversions

FortiConverter 5.0 supports conversions to FortiOS 5.2 and 5.4 only.

However, your FortiConverter license is not tied to a specific version. To convert a configuration to FortiOS 4.3 or 5.0, you can use your license with FortiConverter 4.9 or a special build based on the 4.9 version that Fortinet supplies.

Creating final configurations

While FortiConverter significantly shortens the conversion process, a final, useable configuration requires you to review and audit the FortiConverteroutput conversion. FortiConverter's tuning capability can help with the review and audit process.

While you can use FortiConverter's tuning capability to review and fix errors in the conversion, it is not designed to perform significant reconfiguration.

Incomplete routing information

In some cases, not all the routing information that FortiConverter requires to make a decision about a policy interface is available. In these cases, it uses the 'any' interface.

Double NAT

For Check Point conversions, the FortiConverter conversion engine uses a manual rule to convert configurations that apply source NAT and destination NAT to the same policy (called double NAT).

For all other conversions, FortiConverter NAT merge does not support double NAT. Instead, FortiConverter applies source NAT in the conversion and you complete the configuration by using the tuning page to manually apply destination NAT.

IPsec support

FortiConverter currently only supports policy-based IPsec in the conversion output.

Licensing

The trial version of FortiConverter provides full conversion functionality for FortiGate-to-FortiGate conversions.

It does not support Palo Alto Network conversions.

For all other conversions, you can complete a conversion and view the results in the tuning page. All other functionality is disabled until you upload the full license.

After you purchase and upload a license, FortiConverter is unlocked and full functionality is enabled for all supported vendors. Your paid license entitles you to any new versions of FortiConverter that Fortinet releases until the license expires.

FortiConverter requires an Internet connection to verify its license. You can use the software for up to 30 days without validating the license online, and you can configure FortiConverter to contact the licensing server via a web proxy.

For more information, see "Uploading the license" on page 15

System requirements

FortiConverter requires one of the following operating systems:

- Microsoft Windows 10
- Microsoft Windows 8 (32-bit or 64-bit)
- Microsoft Windows 7 (32-bit or 64-bit)
- Microsoft Windows Server 2008 (32-bit or 64-bit)

In addition, FortiConverter requires .NET Framework 4.0. If it is not already installed on your computer, the FortiConverter installer prompts you to download and install it.

A web browser is required to view conversion reports.

An Internet connection is required to verify the software license.

What's new

The following list contains features that are new or enhanced since FortiConverter 4.9.

FortiConverter 5.1

- **Adjust table sizes in output** – You can now configure FortiConverter to allow larger table sizes and group membership in the output configuration. This is useful when the target configuration is for an appliance like the FortiGate 1200D and above, which can accommodate larger groups.

  See Adjusting table sizes on page 24.

- **Export and import content of the tuning page as a CSV file** – You can now use the tuning page to export converted firewall policies as a comma-separated values (CSV) file, or import firewall policies via a CSV file into the tuning page for viewing and editing.
- **Conversion progress indicator and total time** – After FortiConverter starts a conversion, it now provides an estimate of the amount of time it needs to complete the conversion as a value in per cent, and reports the total conversion time when it is complete.
- **Multiple, smaller output files** – For large Check Point and Cisco conversions (for example, those with more than 1000 address objects), FortiConverter now separates output configuration into multiple files that are easier to work with. The output is split into configuration branches (config system interface, config firewall address, and so on) and when the file is very big (for example, the firewall address configuration is often a large file), the output is further sub-divided into smaller, indexed files.
- **Use unspecified interface type** – On the Physical Interface Mapping page, the Interface Mapping dialog box now allows you to select **unspecified** for **Type**. When you select this option, FortiConverter uses the interface name in the conversion, but ignores the type and other attributes, which provides a name-to-name mapping without interface configuration.

  For example, you can create resources such as VLANs, LAGs, and inter-VDOM links on the target FortiGate device before you import the conversion, and then reference those interfaces in the physical interface mapping.

- **Fortigate conversion**
  - **Migrate using the API** – When you migrate to a new FortiGate model that runs FortiOS 5.4.1 or higher (for example, an E-series device), you can use the FortiOS API to both retrieve the list of interfaces on the target appliance and restore the output configuration to the target appliance directly from FortiConverter

    To allow FortiConverter to use the FortiOS API, ensure that TLSv1.0 is enabled on the target appliance. See Start Options on page 40.
- **Check Point conversion**
  - **IPv6 support for Provider-1 conversions** – FortiConverter now generates separate policies for IPv4 and IPv6 address objects in the output configuration.
  - **Select NAT types to convert** – You can now specify which types of NAT FortiConverter merges with the output firewall policies, or whether FortiConverter performs NAT merge based on object names or values.

    See Start Options - More on page 31.

- **Cisco conversion**
  - **Select NAT types to convert** – You can now specify which types of NAT FortiConverter merges with the output firewall policies, or whether FortiConverter performs NAT merge based on object names or values.

    See Start Options - More on page 38.

FortiConverter 5.0

- **Supported FortiOS conversions** – FortiConverter 5.0 supports conversions to FortiOS 5.2 and 5.4 only. To convert a configuration to FortiOS 4.3 or 5.0, you can use your license with FortiConverter 4.9 or a special build based on the 4.9 version that Fortinet supplies.
- **Complete conversion and tuning with a trial license** – To allow you to successfully evaluate FortiConverter, for most vendor conversions, you can now use the trial license to generate a complete conversion and view the results in the tuning page. (All other functionality, including output, is disabled until you upload the full license.)
- **License validation via web proxy** – You can now configure FortiConverter to use an explicit (non-transparent) web proxy server to connect to Fortinet's online licensing servers.
- **Physical interfaces mapping enhancements** – For conversion wizards that provide physical interface mapping options, new options allow you to map interfaces to an aggregate interface and delete interfaces that are not used in the output configuration.
- **Configurable VDOM mapping** – For configurations with objects such as virtual contexts or logical or virtual systems that FortiConverter converts to VDOMs, you can now select which objects to convert and specify the name of the VDOMs.

  For Check Point conversions, you can also convert a firewall to a non-root VDOM. This option allows you to import the configuration into an existing FortiGate device instead of generating standalone output.
- **Counts of detected and created policies** – The conversion results now display both the number of policies that FortiConverter detected during the conversion and the number of policies in the output conversion.
- **Original policy IDs in converted NAT policy IDs** – FortiConverter now creates the policy IDs for any NAT policies in the output configuration by adding a three-digit prefix to the original policy ID. For example, the original policy 100015 corresponds to policies 001100015, 002100015, and so on in the output.
- **Check Point and Cisco NAT merge examples** – The user guide now includes detailed examples of the logic FortiConverter uses to migrate different forms of NAT from Check Point and Cisco source configurations to FortiOS.
- **Check Point conversion**
  - **FortiOS 5.4 Central NAT support** – Conversions to FortiOS 5.4 can now support the central NAT feature. (Conversions to FortiOS 5.2 use central source NAT.)

FortiConverter 4.9

- **FortiGate conversion to FortiOS 5.4** – You can now convert a FortiOS 4.3, 5.0, or 5.2 configuration to FortiOS 5.4. (Currently, you cannot convert configurations from other vendors to FortiOS 5.4.)
- **Check Point conversion**
  - **Enable “identity match” of NAT policy** – When a Check Point firewall uses automatic NAT rules, it matches two rules to a connection. This mechanism does not exist in FortiOS and the extra NAT rules (which disable NAT for connections between the same identity) are usually not required. This new option allows you to include the extra rules in the conversion. By default, FortiConverter does not translate the extra rules.

    See Start Options - More on page 31.

Installing the software

To download the FortiConverter installer from the Fortinet Technical Support web site, go to:

https://support.fortinet.com

To install FortiConverter

1. Double-click the FortiConverter installer executable (.exe).

   If your computer does not have Microsoft .NET Framework 4.0, you are prompted to install it.

2. To proceed with the installation, click **Yes** and then download the software framework from Microsoft's web site.
3. To continue the installation, read the license agreement, select **I accept the terms of the License Agreement**, and then click **Next**.
4. If you want to install the program in a location that is different from the default one, click **Browse** and select the directory.
5. Click **Next**.
6. Select the Start Menu folder that you want to add the program shortcuts to, and then click **Install**.
7. Click **Finish** to exit the FortiConverter installer.

Uploading the license

By default, FortiConverter is installed with a limited, trial license. If you have purchased an full license, upload it to unlock the complete feature set.

To purchase a license, use your usual Fortinet sales channel.

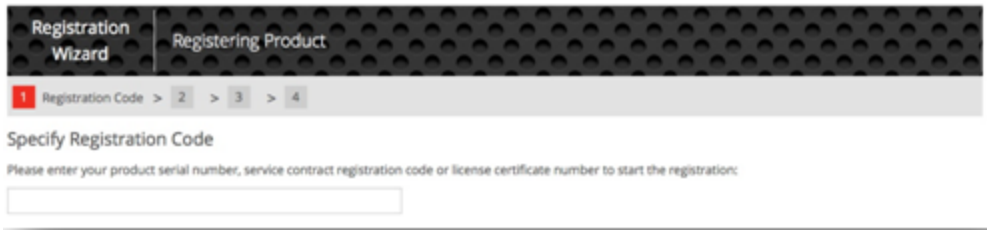
To activate the license

1. To start FortiConverter, double-click its shortcut.
2. On the home page, click **License Activation**.
3. On the License tab, copy the **Hardware ID** value to the clipboard.
4. Ensure you have purchased a license, and then sign in to the Fortinet Technical Support web site at the following location:

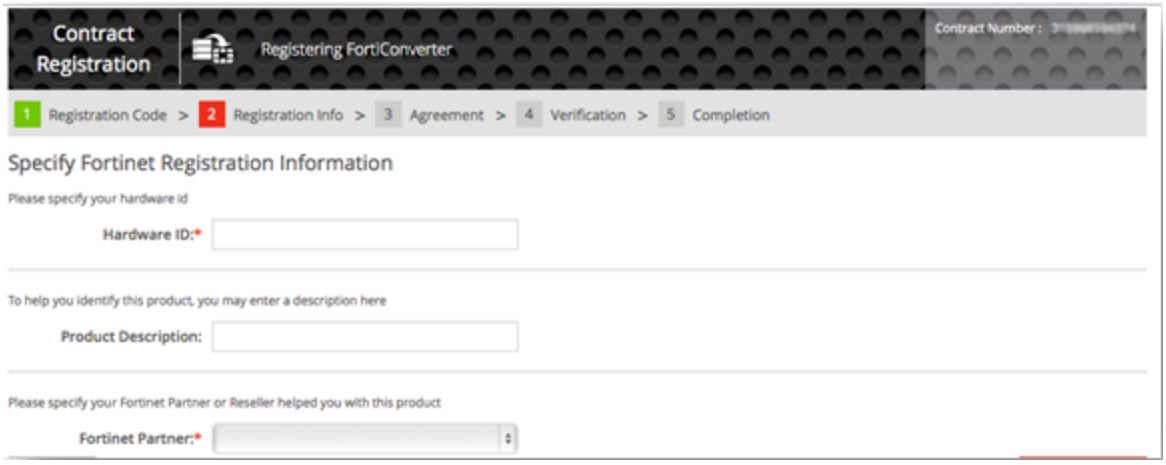
   https://support.fortinet.com/

   Registration uses a simple, four-step wizard that is common to many Fortinet products.

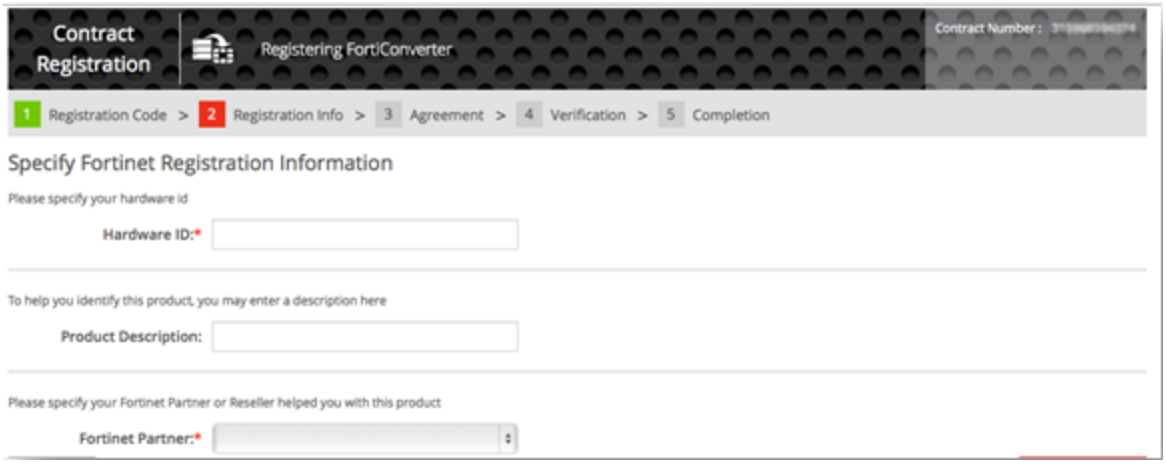
5. On the first page of the wizard, enter the registration code you received when you purchased your FortiConverter product.



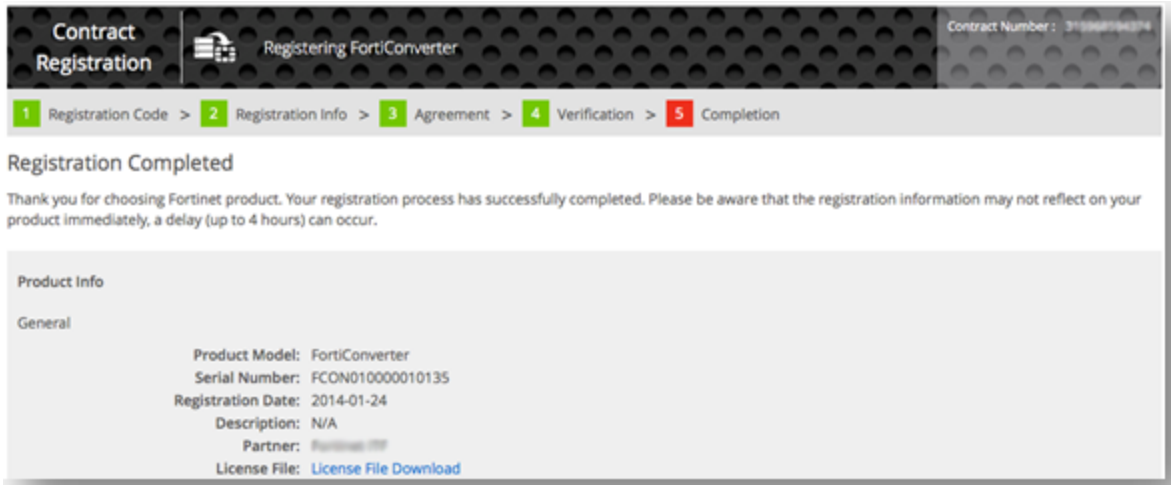
6. For step 2 of the registration wizard, for **Hardware ID**, enter the **Machine Code** value you copied earlier.



7. For step 2 of the registration wizard, for **Hardware ID**, enter the **Machine Code** value you copied earlier.



8. After you agree to the license terms, the final page of the wizard (step 5) allows you to download the license file (.lic file).



9. In FortiConverter, on the License tab, click **Select** and navigate to the .lic file to select it.
10. Click **Activate**.

    FortiConverter validates the license file and changes the value of **Activation Status** from **Free** to **Activated**.

    Your license is valid for all FortiConverter software updates released until the date specified by **License Expire Date**.

    After the license is activated, to access the expiry information, on the home page, click **System Setting**, and then click the **License** tab.

License validation via web proxy

You can configure FortiConverter to use an explicit (non-transparent) web proxy server to connect to Fortinet's online licensing servers.

FortiConverter connects to the proxy using the HTTP CONNECT method, as described in RFC 2616.

1. On the FortiConverter home page, click **License Activation**.
2. On the Proxy tab, select **Enable Proxy** and then specify the IP address and the port of the web proxy to use.
3. Click **Apply**.

Conversion

FortiConverter provides wizards that convert configuration files from a specific vendor to FortiGate or FortiManager configuration files. After you input information about your previous vendor's configuration files, you can preview and fine-tune the conversion before you output the final FortiGate or FortiManager configuration file.

Downloading the source configuration files

Before you start the conversion wizard, download your existing configuration to the computer where FortiConverter is installed. Procedures vary by vendor.

Some vendors divide the configuration into multiple files, so make sure that you download all files.

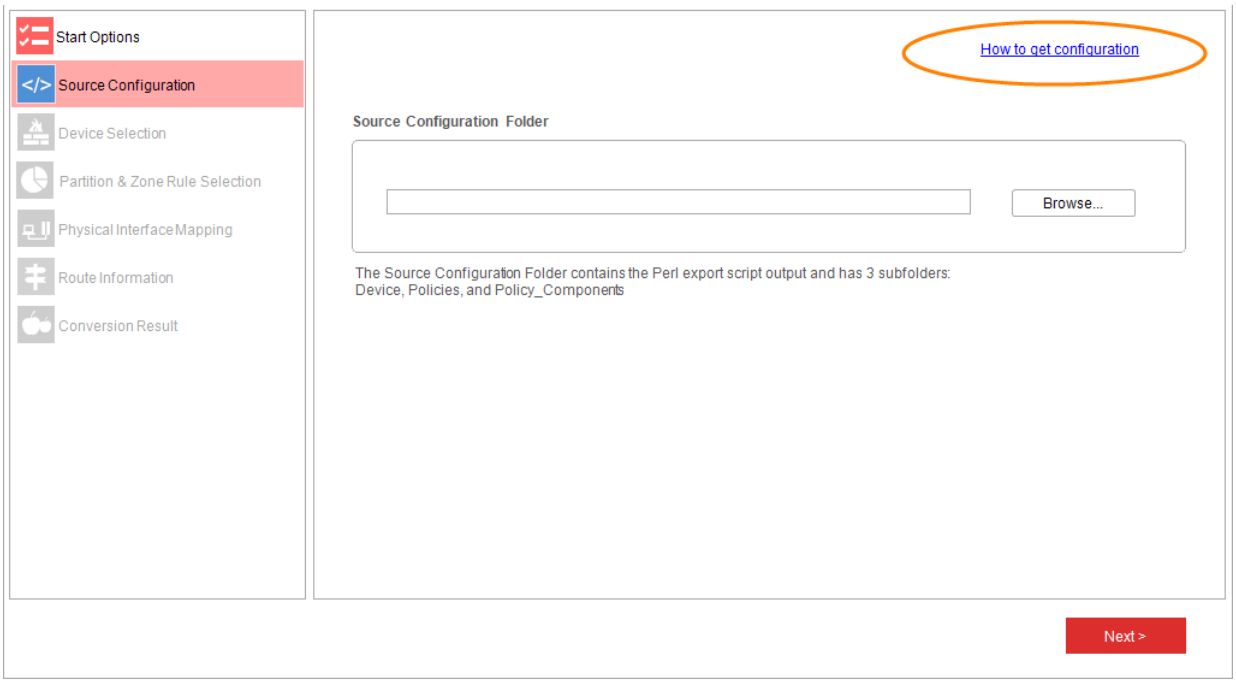
Alcatel-Lucent

FortiConverter provides a Perl script for downloading Alcatel-Lucent Brick configurations.

To access the Alcatel-Lucent configuration download script

1. On the FortiConverter home page, click the Alcatel-Lucent square.
2. On the Start Options page, click **Next**.

   If you are using the wizard to retrieve the download script only, use the default settings for this page. You can restart the wizard later after you have the file and are ready to perform the conversion with the appropriate settings.
3. On the Source Configuration Selection page, click **How to get configuration**.



The Windows folder that contains the Perl script and the documentation for using it are displayed. Follow the instructions to run the Perl script and output the source configuration as a set of directories.

Check Point

To acquire the configuration, download the following files. In most cases, you download the object and policy definitions from the management system:

- Object definitions — 'objects_5_0.C' (Check Point NG/NGX) or 'objects.C' (Check Point 4.x) contain the firewall's object definitions. To convert from Provider-1, 'mcss.C' contains the MDS hierarchy files.
- Policy and rule definitions — '*.w' or 'rulebases_5_0.fws'. The file name is <rule>.W (default Standard.W). or rulebases_5_0.fws. They are located in the directory "[SmartCenter] : $FWDIR/conf".
- Route information (optional) — Helps FortiConverter to correctly interpret the network topology being converted. To get this data, enter the `route print` command on the firewall node, and then copy and paste the output into a plain text file. Codes in the output indicate if the route is a directly connected interface, a host route, a network route, and so on. The output varies by the platform.
- User and user groups file (optional) — fwauth.NDBx

File	File name	Path
Object definitions	objects_5_0.C (Checkpoint NG/NGX) objects.C (Checkpoint 4.x_)	$FWDIR/conf
	mcss.C (Provider-1)	$MDSDIR/conf/mdsdb

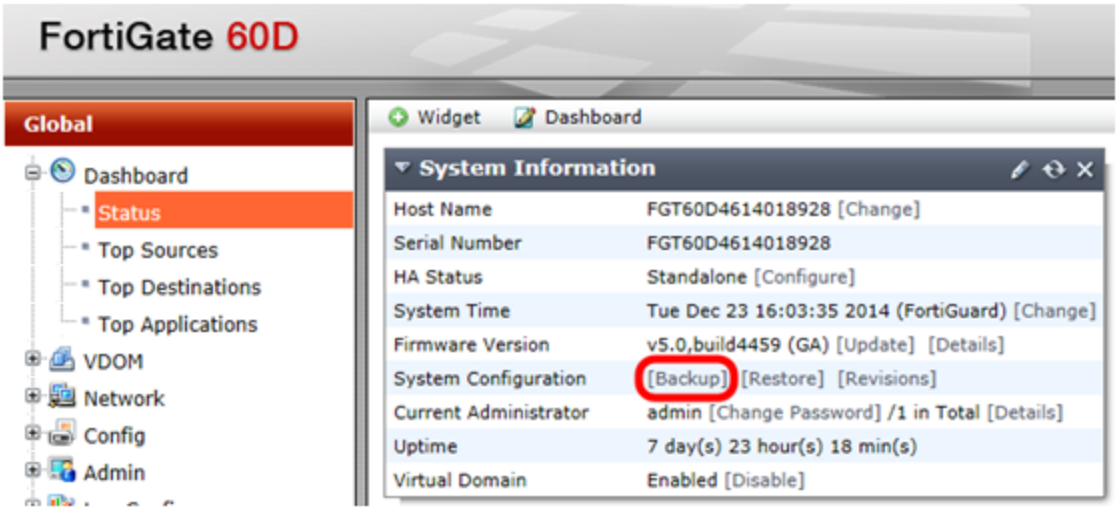
File	File name	Path
Policy and Rule definitions	rulebase_5_0.fws [package name].W	$FWDIR/conf
Route information	NA	Save output of route print command from firewall
User and User Group file	fwauth.NDBx	$FWDIR/conf/ or $FWDIR/database/

Cisco

To acquire the configuration, enter the `show running-config` command, and then paste the output into a plain text file.

Fortinet

Use the **Backup** option on the Status Dashboard System Information widget to download the configuration.



Juniper

For both ScreenOS and Junos, to obtain the configuration, in the web UI, go to **Configuration > Update > ConfigFile**.

Alternatively, for ScreenOS only, you can use the `get conf` CLI command and paste the output into a plain text file.

For Junos, FortiConverter requires the structural configuration file as a valid input. For example:

```
show configuration
## Last commit: 2013-06-05 11:28:53 CST by master
version 10.2S7;
groups {
    node0 {
        system {
            host-name SRX3400-Active;
            backup-router 172.16.1.254 destination 0.0.0.0/0;
        }
        interfaces {
            fxp0 {
                unit 0 {
                    family inet {
                        address 172.16.1.1/24;
                    }
                }
            }
        }
    }
.............
.............
```

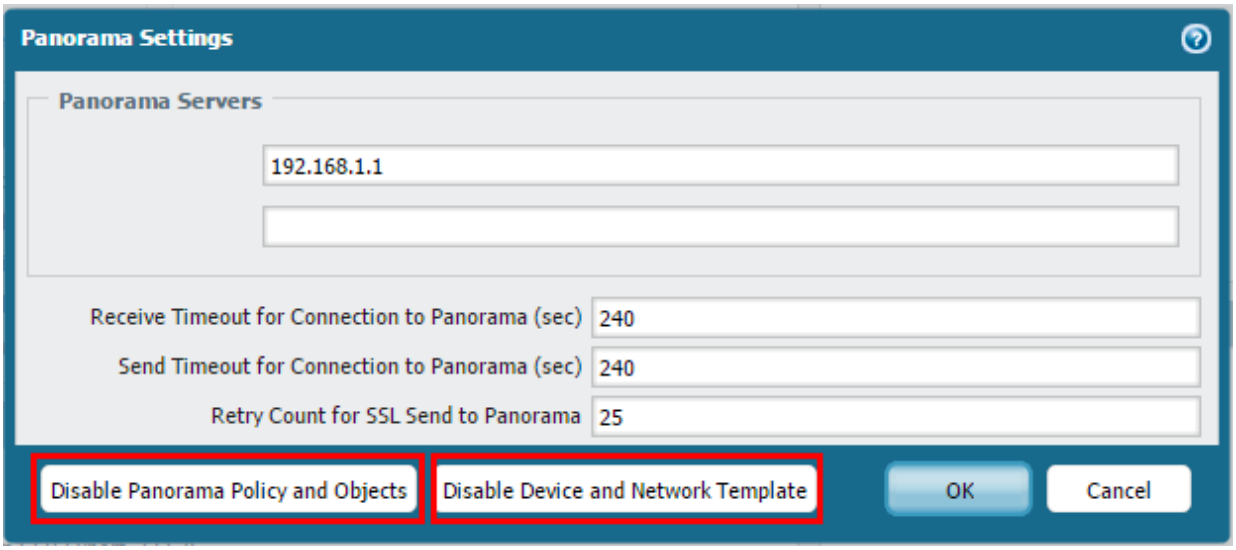
Palo Alto Networks

In the web UI, go to **Device > Setup > Operations**, and then click **Export named configuration snapshot**.

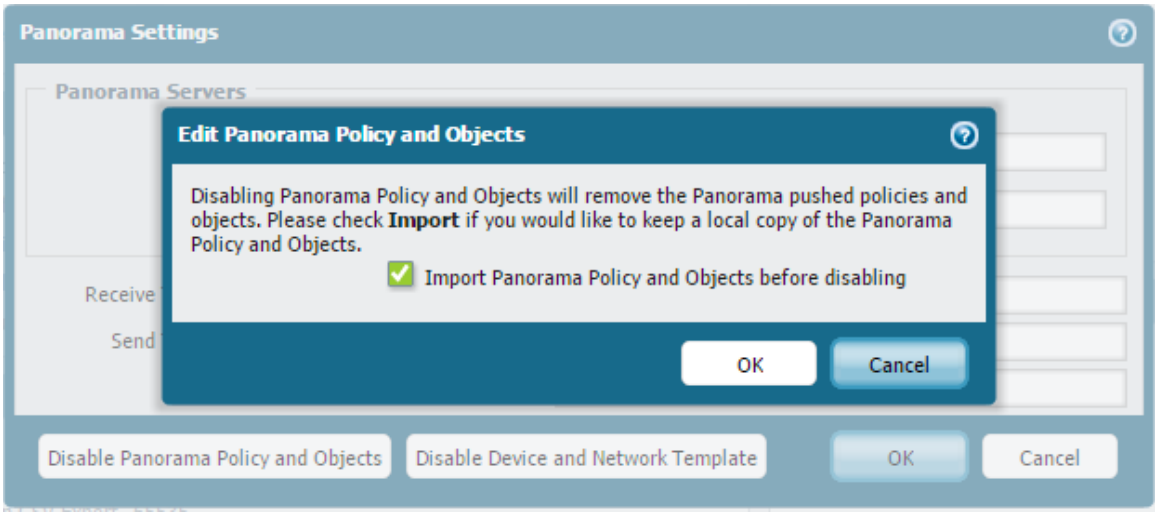
If the configuration is managed using Panorama shared policy configuration, you disable shared configuration before you export.

To disable Panorama shared configuration

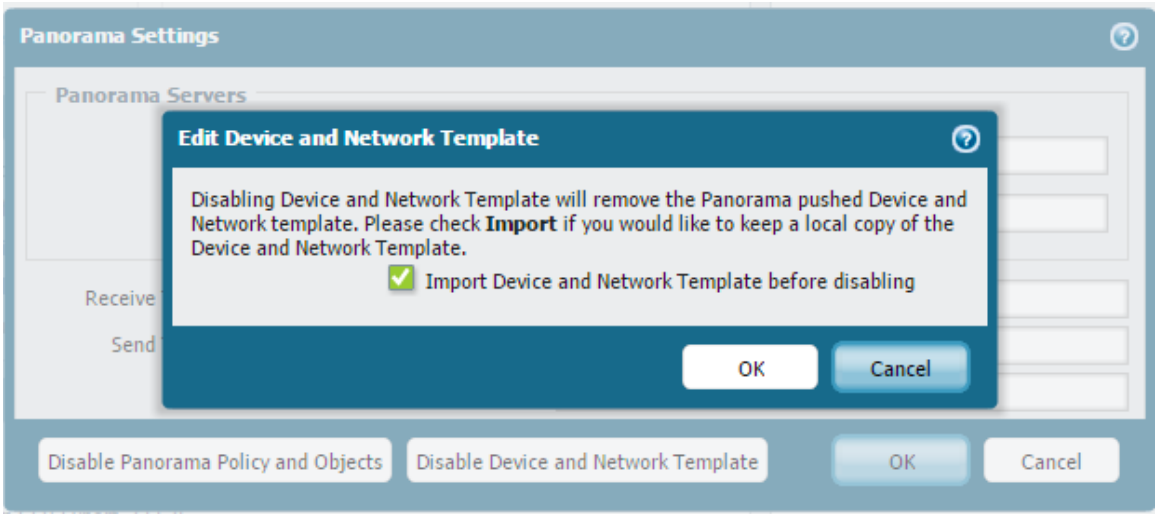
1. Log in to the device you want to remove from Panorama.
2. Go to **Device > Setup > Management > Panorama Settings** and click **Disable Panorama Policy and Object** or **Disable Device and Network Template**.



3. Do one of the following to import the configuration from Panorama into the firewall's local configuration:
   - If you clicked **Disable Panorama Policy and Object**, in the edit dialog box, select **Import Panorama Policy and Objects before disabling** and then click **OK**.

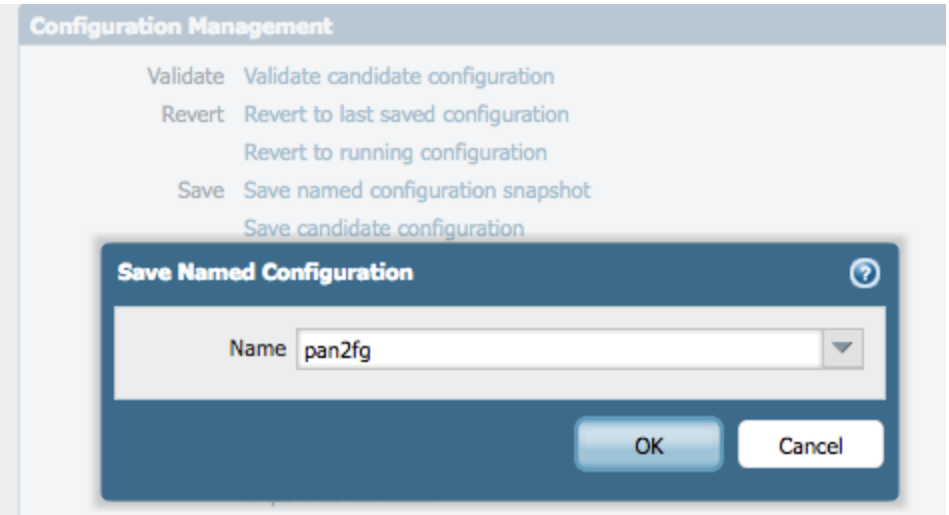


   - If you clicked **Disable Device and Network Template**, select **Import Device and Network Template before disabling** and then click **OK**.

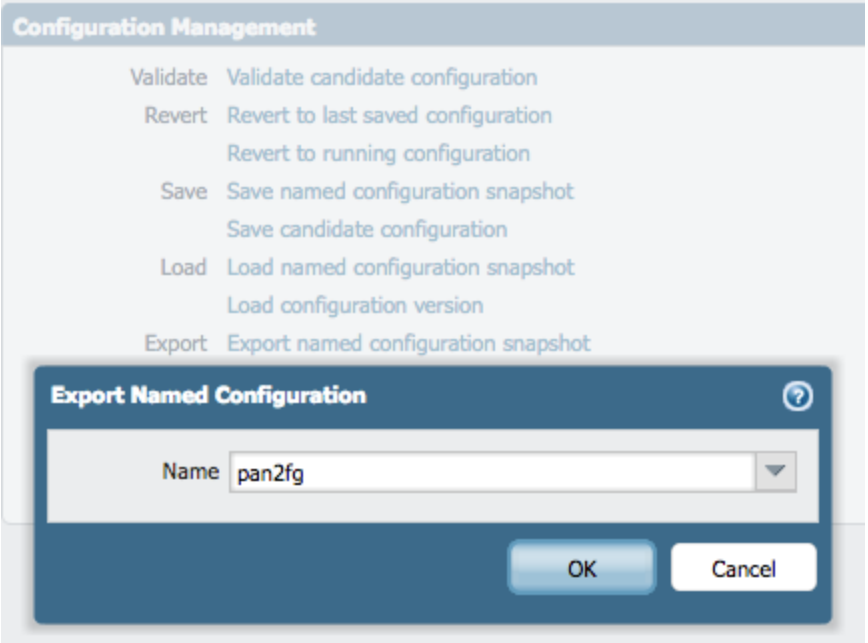


4. Log in to the device that was removed from Panorama and go to **Device > Setup > Operations > Save > Save named configuration snapshot**.

5. Enter a name that helps to identify the configuration. In this example, it is **pan2fg**.



6. Go to **Device > Setup > Operations > Export > Export the named configuration snapshot**.



7. Click **OK**.

You select the exported file on the Source Configuration page of the Palo Alto conversion wizard. For more information, see Palo Alto conversion wizard on page 48.

SonicWall

To download the configuration (*.exp file), in the web UI, go to **System > Settings > Export Settings**.

Using the conversion wizards

To access the conversion wizards, from the main FortiConverter window, click the appropriate icon.

FortiConverter has a separate wizard for each supported vendor. The settings for each wizard type are described in the sections that follow this introduction.

Each wizard has a demo configuration file that can be selected using the Demo check box in the upper right corner.

The settings that are displayed depend the input configuration. For some conversions, not every page in the wizard is displayed.

Adjusting table sizes

The conversion wizard Start Options page allows you to specify whether FortiConverter allows larger table sizes and group membership in the output configuration.

This is useful when, for example, the source configuration has a large address group and the target configuration can accommodate the larger group. Otherwise, FortiConverter converts the large address group into two or more smaller address groups for a single policy.

Table size settings file

When you select **Adjust table sizes**, FortiConverter uses the maximum table sizes in the file **TargetPlatformTablesizeSetting.txt**, which is stored in the same folder as the FortiConverter executable file (for example, using the default installation path, **C:\Program Files (x86)\Fortinet\FortiConverter\TargetPlatformTablesizeSetting.txt**).

By default, the file contains the following values, which are suitable for high-end devices (for example, FortiGate 1200D or higher):

```
Address groups:20000
Addresses per group:1500
Custom service objects:4096
```

You can manually adjust these values by editing the file.

Viewing maximum table sizes for your target device

On your target system, enter the following command:

```
print tablesize
```

The maximum table sizes are displayed in a response similar to the following output:

```
firewall addrgrp: 0 20000 20000
```

```
firewall addrgrp:member: 1500 0 0
```

```
firewall service custom: 0 4096 0
```

NAT merge options

For Check Point and Cisco PIX conversions, you can select which types of NAT configuration FortiConverter uses to generate output firewall policies, or whether FortiConverter derives its NAT-based policies based on object names or object values.

Because it can take FortiConverter several hours to complete a conversion that includes a large number of NAT rules, Fortinet recommends that you turn off NAT merge for **all** types of NAT for your initial conversion. Then, after you resolve any issues with the conversion, run it again at a convenient time with NAT merge enabled.

NAT merge depth

The FortiConverter NAT merge feature compares a firewall policy's source and destination address with addresses in NAT rules. When these addresses overlap, FortiConverter uses the NAT rules to generate additional policies in the output configuration.

If a policy has an address with a large range, it can overlap with many NAT rules, which generates many NAT policies. Because output that includes a large number of NAT policies can be hard to review, FortiConverter provides NAT merge depth options that can reduce the number of NAT policies.

The merge depth policies control both the type of NAT to merge and the scope of the merge:

- When you select **Off** for a type of NAT, FortiConverter does not perform NAT merge using NAT rules of that type. If it is turned off for all types, the output conversion contains the converted source configuration policies only.
- When you select **Object Names**, FortiConverter generates policies based on NAT rules only where the address name the rules use is found in a policy. For Cisco PIX, this option can also match NAT rules and policies if they contain addresses that match exactly.

  For example, a source configuration NAT rule dynamically translates the object "address1"(IP 10.10.10.10) to "200.200.200.200".

  The source configuration also has three polices:

  - policy1: source address is "address1"
  - policy2: source address is "10.10.10.0-10.10.10.255"
  - policy3: source address is "all"

  Only policy1 matches the NAT rule, because it shares the address object name, and policy2 and policy3 do not match because they do not reference the name "address1".

  Cisco PIX allows you to use an IP address to configure a NAT rule instead of a name. For example, the NAT rule 10.10.10.10 to 200.200.200.200. When **Object Names** is selected, this NAT rule matches a policy with source address 10.10.10.10, even though it does not refer to a object name because they have the exactly the same IP range.
- When you select **Object Values**, FortiConverter generates policies based on NAT rules that have address values that fall anywhere in the range specified by a policy (overlap).

  For the example above, when **Object Values** is selected, the NAT rule that translates the object "address1"(IP

10.10.10.10) to "200.200.200.200" matches both policy2 and policy3.

Object Values generates the most accurate matching of NAT rules and policies, but in most cases, it also generates more NAT policies.

Alcatel-Lucent conversion wizard

Start Options

Setting	Description
Model	LucentBrick is the only supported model.
Output Format	FortiGate is the only supported output format.
Output OS Version	Select the version that corresponds to the FortiOS version on the target.
Discard unreferenced firewall objects	Specifies whether addresses, schedules, and services that are not referenced by a policy are saved and added to the output.
Enable *host behind zone* attribute	Specifies whether FortiConverter restricts the destination or source IP addresses in the firewall policy it generates to ones specified by the "hosts behind zone" settings in the source configuration. When this option is disabled, FortiConverter ignores the "hosts behind zone" settings and it uses the destination or source IP address specified by the source rule in the output policy.
Convert *Administrative Zone* zone ruleset	Specifies whether FortiConverter includes the default “administrativezone” ruleset in the output configuration. Because the “administrativezone” ruleset is designed for device management, in most cases, it is not required in the output configuration.
Include input configuration lines for each output policy	Specifies whether FortiConverter includes the input configuration lines used for each FortiGate policy in the FortiGate configuration as a policy comment.
Enable *intra-partition* zone rule set merge	Specifies whether FortiConverter creates FortiGate policies for traffic within a partition that the source configuration applies multiple zone rulesets to. For more information on how FortiConverter converts intra-partition zone rulesets to a FortiGate policy, see Alcatel-Lucent differences on page 78.

Setting	Description
Adjust table sizes	Specifies whether FortiConverter uses the default maximum table sizes or allows larger table sizes and group membership in the output configuration. This is useful when, for example, the source configuration has a large address group and the target configuration can accommodate the larger group. Otherwise, FortiConverter converts the large address group into two or more smaller address groups for a single policy. By default, FortiMonitor uses the following default maximum table sizes: • **Address groups** – 2500 • **Addresses per group** – 300 • **Custom service objects** – 1024 When this option is selected, FortiMonitor uses the following maximum table sizes: • **Address groups** – 20000 • **Addresses per group** – 1500 • **Custom service objects** – 4096 You can customize the maximum table sizes that FortiMonitor uses when **Adjust table sizes** is selected. For more information, see Adjusting table sizes on page 24.
Output Directory	Select the folder where the output configuration is saved.

Source Configuration

Setting	Description
Source Configuration Folder	Select the input folder.

Device Selection

Setting	Description
(firewall name)	Select the firewalls to convert.
Output to non-root VDOM	Select to convert the selected firewall to a VDOM you specify instead of a standalone FortiGate configuration using the root VDOM.
(VDOM name field)	Enter the name of the VDOM to convert the firewall to.

Partition & Zone Rule Selection

Setting	Description
Select all partitions	Select to select all partitions and clear it to de-select all partitions.
Partition selection	Use the check box to select a partition to include in the conversion. Click the pair of arrows on the right to open or close the detailed partition view, which shows the individual zone rules within a partition.
Zone rule selection	Use the check box to select a zone rule to include in the conversion.

Physical Interface Mapping

To select the appropriate FortiGate interface, click the value in the FortiGate Interface column, and then select a value or enter a custom interface name.

To edit other values, including changing the interface from physical to aggregate, double-click a column other than FortiGate Interface to open the Interface Mapping dialog box.

The Interface Mapping dialog box allows you to select the following interface types:

- **aggregate** – Select up to four aggregate interface members. If you need to add additional members, edit the `set members interface` setting in the output configuration or use the FortiOS web UI to add interfaces after you import the configuration.
- **unspecified** – FortiConverter uses the interface name in the conversion, but ignores the type and other attributes, which provides a name-to-name mapping without interface configuration.

  For example, you can create resources such as VLANs, LAGs, and inter-VDOM links on the target FortiGate device before you import the conversion, and then reference those interfaces in the physical interface mapping.

You can also use the tuning page to create mappings, such as physical to VLAN, after the conversion is complete.

To delete an interface, select the entry and click **Delete**. This is useful if your target FortiGate has fewer interfaces than the source configuration.

Setting	Description
FortiGate Interface (table column)	Click to assign a FortiGate port for each interface. Enter a port name or custom text.
Import from file	Click to load a set of interface mappings from a text file.
Export current mappings	Saves the current set of interface mappings to a text file.
Add	Click to add a mapping item.
Edit	Click to edit additional properties for the selected mapping item.
Delete	Click to delete the selected mapping item.

VLAN and Loopback

For information only. No settings.

Route Information

Setting	Description
Add	Click to add a route.
Edit	Click to edit the selected route.
Delete	Click to delete the selected route.

Conversion Result

Tab	Description
Conversion Summary	Provides statistics about the conversion.
Policies Detected & Policies Created	Allows you to view and compare the number of objects that FortiConverter detected in the source configuration and the ones it created for the output configuration.
Messages & Warnings	Allows you to review any objects that FortiConverter did not include in the conversion.

Setting	Description
Export	Generates an HTML page of the conversion result.
Go to Output	Opens the output folder .
Go to Tuning	Opens the tuning page. See Tuning the FortiConverter output on page 57.
Go to Report	Opens a detailed conversion report that includes a list of converted objects and policies and displays lines from the source configuration that FortiConverter did not convert.

For more information, see Viewing the results of your automatic conversion on page 56

Check Point conversion wizard

The pages that the Check Point conversion wizard displays depend on whether your source configuration is SmartCenter or Provider-1.

Including object comments in the output configuration

By default, output configurations from Check Point, Juniper, and SonicWall do not include all object comments. Depending on the source configuration, the default output can exclude the following information:

- comments for interface, address, service, or rule objects
- review memo information for policy objects

To configure FortiConverter to include object comments

1. Before you start the conversion wizard, in a plain-text editor, open the appropriate option file in the FortiConverter installation directory. (The default folder for the files is C:\Program Files (x86)\Fortinet\FortiConverter\.)

   For example, for a Check Point conversion, open the file `CheckpointOptions.txt`.

2. Remove the **#** (number sign) from one or more of the following entries to include the corresponding data in the output configuration:

   ```
   #interface comment
   #address comment
   #service comment
   #rule comment
   #policy review memo
   ```

3. Save your changes, and then start the wizard to begin the conversion process.

Start Options

Setting	Description
Model	Select the source Check Point model.
Output Format	Select the appropriate output for your target Fortinet device. You can convert Provider-1 to FortiManager output only.
Output OS Version	FortiOS 4.x and 5.x have different configuration syntaxes. Select the version that corresponds to the FortiOS version on the target.
Discard unreferenced firewall objects	Specifies whether addresses, schedules, and services that are not referenced by a policy are saved and added to the output.
Ignore firewall policies with *all* or *any* addresses when processing NAT rules	Specifies whether FortiConverter ignores addresses with an “all/any” address when it merges a NAT rule and a security rule to create a FortiGate NAT policy. (In most cases, this type of address matches anything.)
Auto generate policy interfaces	Specifies whether FortiConverter generates policy interfaces using the Check Point route file.
More	Displays additional start options. See Start Options - More on page 31.

Setting	Description
Output Directory	Select the folder where the output configuration is saved.

Start Options - More

Setting	Description
Discard unreferenced firewall objects	Specifies whether addresses, schedules, and services that are not referenced by a policy are saved and added to the output.
Auto generate policy interfaces	Specifies whether FortiConverter generates policy interfaces using the Check Point route file.
Number of year-long schedules from *day in month* schedules	Specifies how many years of one-time schedules to generate. The wizard converts Check Point “day in month” schedules into equivalent one-time FortiGate schedules.
Comments	
Interface comment	Specifies whether FortiConverter copies the interface comment from the source configuration to the mapped FortiGate interface.
Address comment	Specifies whether FortiConverter copies the address comment from source configuration to the converted FortiGate address.
Service comment	Specifies whether FortiConverter copies the service comment from the source configuration to converted FortiGate service.
Policy package name, rule Number	
Original Check Point firewall rule comment	Specifies what information FortiConverter includes in the converted policy comment.
Policy package name, rule number, original Check Point firewall rule comment	
NAT Merge	
Ignore firewall policies with *all* or *any* addresses when processing NAT rules	Specifies whether FortiConverter ignores addresses with an “all/any” address when it merges a NAT rule and a security rule to create a FortiGate NAT policy. (In most cases, this type of address matches anything.)
Enable Central NAT merge	Specifies whether FortiConverter converts Hide NATs to FortiGate central NATs instead of policy-based NATs.

Setting	Description
Copy NAT merge policies to a separate text file	Specifies whether FortiConverter generates a separate text file for NAT merge policies. FortiConverter generates NAT merge policies by merging NAT and security rules in the source configuration.
Enable *identity match* of NAT policy	Specifies whether FortiController converts or ignores any identity NAT rules in the source configuration. The "range" and "network" address objects in a Check point configuration can include hide NAT and static NAT. Check Point performs NAT only when a host in the IP range of the address object communicates with a host outside that range. To disable NAT for traffic with both source and destination inside the address range, Check Point generates an automatic rule called an "identity NAT rule". By default, FortiConverter excludes this type of rule from the conversion because it performs no NAT after it is converted and generates redundant policies. You can enable this option to generate policies based on the identity NAT rules.
Rule NAT merge depth **Static NAT merge depth** **Hide NAT merge depth**	Specifies which types of NAT FortiConverter merges with the output firewall policies, or whether FortiConverter performs NAT merge based on object names or values. Because it can take FortiConverter several hours to complete a conversion that include a large number of NAT rules, Fortinet recommends that you turn off or limit NAT merge for your initial conversion. Then, resolve any issues with the conversion before you run it again with NAT merge enabled. Select **Off**, **Object Names** or **Object Values**. For more information, see NAT merge options on page 25.

Setting	Description
Adjust table sizes	Specifies whether FortiConverter uses the default maximum table sizes or allows larger table sizes and group membership in the output configuration. This is useful when, for example, the source configuration has a large address group and the target configuration can accommodate the larger group. Otherwise, FortiConverter converts the large address group into two or more smaller address groups for a single policy. By default, FortiMonitor uses the following default maximum table sizes: • **Address groups** – 2500 • **Addresses per group** – 300 • **Custom service objects** – 1024 When this option is selected, FortiMonitor uses the following maximum table sizes: • **Address groups** – 20000 • **Addresses per group** – 1500 • **Custom service objects** – 4096 You can customize the maximum table sizes that FortiMonitor uses when **Adjust table sizes** is selected. For more information, see Adjusting table sizes on page 24.
Back	Displays the main Start Options page.

MDS Source Configuration (Provider-1 only)

Setting	Description
Browse	Select the Provider-1 configuration files.

MDS Selection (Provider-1 only)

Setting	Description
Please select the MDS which you want to convert	Select the domain to convert.

Global Policy Collection (Provider-1)

Setting	Description
Standard_Global_Policy	Specifies whether FortiConverter converts the Standard Global Policy. You can select both **Standard Global Policy** and **Simple Global Policy**.
Simple_Global_Policy	Specifies whether FortiConverter converts the Simple Global Policy.

Domain Source Configuration

Setting	Description
Browse	Click to select domain source configuration files. For information on acquiring these files, see Downloading the source configuration files on page 18.

Policy Collection

Setting	Description
(policy collection item)	Select the policy collections to convert.
Select/deselect all	Select or clear all policy collection items.

Firewall Selection (SmartCenter only)

Setting	Description
(firewall item)	Select one or more firewalls to convert.
Output to non-root VDOM	Select to convert the selected firewall to a VDOM you specify instead of a standalone FortiGate configuration using the root VDOM.
(VDOM name field)	Enter the name of the VDOM to convert the firewall to.
(Route file name field)	(Optional) Enter the path and file name of a file that contains route information, or click **Browse** to select it. For example, the file can contain routing tables you obtained using the `netstat -nr` command.

Physical Interface Mapping (SmartCenter only)

To select the appropriate FortiGate interface, click the value in the FortiGate Interface column, and then select a value or enter a custom interface name.

To edit other values, including changing the interface from physical to aggregate, double-click a column other than FortiGate Interface to open the Interface Mapping dialog box.

The Interface Mapping dialog box allows you to select **aggregate** as the interface type and up to four aggregate interface members. If you need to add additional members, edit the `set members interface` setting in the output configuration or use the FortiOS web UI to add interfaces after you import the configuration.

For other types of mappings, such as physical to VLAN, use the tuning page after the conversion is complete.

To delete an interface, select the entry and click **Delete**. This is useful if your target FortiGate has fewer interfaces than the source configuration.

Setting	Description
FortiGate Interface (table column)	Click to assign a FortiGate port for each interface. Enter a port name or custom text.
Import from file	Click to load a set of interface mappings from a text file.
Export current mappings	Saves the current set of interface mappings to a text file.
Add	Click to add a mapping item.
Edit	Click to edit additional properties for the selected mapping item.
Delete	Click to delete the selected mapping item.

Route Information (SmartCenter only)

Setting	Description
Add	Click to add a route.
Edit	Click to edit the selected route.
Delete	Click to delete the selected route.

Conversion Result

Tab	Description
Conversion Summary	Provides statistics about the conversion.

Tab	Description
Policies Detected & Policies Created	Allows you to view and compare the number of objects that FortiConverter detected in the source configuration and the ones it created for the output configuration.
Messages & Warnings	Allows you to review any objects that FortiConverter did not include in the conversion.

Setting	Description
View in HTML	Generates an HTML page of the conversion result.
Go to Output	Opens the output folder .
Go to Tuning	Opens the tuning page. See Tuning the FortiConverter output on page 57.
Go to Report	Opens a detailed conversion report that includes a list of converted objects and policies and displays lines from the source configuration that FortiConverter did not convert.

For more information, see Viewing the results of your automatic conversion on page 56

Cisco conversion wizard

Start Options

Setting	Description
Model	Select the model of the source configuration.
Output Format	Select the appropriate output format for your FortiGate device.
Output OS Version	FortiOS 5.2 and 5.4 have different configuration syntaxes. Select the version that corresponds to the FortiOS version on the target.
Discard unreferenced firewall objects	Specifies whether addresses, schedules, and services that are not referenced by a policy are saved and added to the output.
Copy NAT merge policies to a separate text file	Specifies whether FortiConverter copies NAT merge policies to a separate text file named `PolicyMemo.txt` that you can review.

Setting	Description
Adjust table sizes	Specifies whether FortiConverter uses the default maximum table sizes or allows larger table sizes and group membership in the output configuration. This is useful when, for example, the source configuration has a large address group and the target configuration can accommodate the larger group. Otherwise, FortiConverter converts the large address group into two or more smaller address groups for a single policy. By default, FortiMonitor uses the following default maximum table sizes: • **Address groups** – 2500 • **Addresses per group** – 300 • **Custom service objects** – 1024 When this option is selected, FortiMonitor uses the following maximum table sizes: • **Address groups** – 20000 • **Addresses per group** – 1500 • **Custom service objects** – 4096 You can customize the maximum table sizes that FortiMonitor uses when **Adjust table sizes** is selected. For more information, see Adjusting table sizes on page 24.
Include input configuration lines for each output policy	Specifies whether FortiConverter includes the input configuration lines used for each FortiGate policy in the FortiGate configuration as a policy comment.
Ignore firewall policies with *all* or *any* addresses when processing NAT rules	Specifies whether FortiConverter ignores addresses with an “all/any” address when it merges a NAT rule and a security rule to create a FortiGate NAT policy. (In most cases, this type of address matches anything.)
Include input configuration lines for each output policy	Specifies whether FortiConverter includes the input configuration lines used for each FortiGate policy in the FortiGate configuration as a policy comment.
More	Displays additional start options. See Start Options - More on page 38. Available only when **Model** is **PIX**.
Output Directory	Select the folder where the output configuration is saved.

Start Options - More

Setting	Description
NAT Merge	
NAT exemption merge depth **Dynamic NAT merge depth** **Dynamic ACL NAT merge depth** **Static NAT merge depth** **Static ACL NAT merge depth**	Specifies which types of NAT FortiConverter merges with the output firewall policies, or whether FortiConverter performs NAT merge based on object names or values. Because it can take FortiConverter several hours to complete a conversion that include a large number of NAT rules, Fortinet recommends that you turn off or limit NAT merge for your initial conversion. Then, resolve any issues with the conversion before you run it again with NAT merge enabled. Select **Off**, **Object Names** or **Object Values**. For more information, see NAT merge options on page 25.

Source Configuration

Setting	Description
Source Configuration File	Select the input file or files.
Cisco Route File (Optional)	Select the route file.

Context Selection

Map the virtual contexts in the source configuration to VDOMs in the output configuration.

To select multiple items in the list, do one of the following:

- Select an item, and then Ctrl + click one or more additional items.
- Select an item, and then Shift + click an additional item. The items and any items between them are selected.

Setting	Description
Enable VDOM	Select to enable VDOMs (add `config global` and `config vdom` syntax) to the output config.
Add	Click to add a mapping item after you have deleted one.
Delete	Click to delete a mapping item.

Physical Interface Mapping

To select the appropriate FortiGate interface, click the value in the FortiGate Interface column, and then select a value or enter a custom interface name.

To edit other values, including changing the interface from physical to aggregate, double-click a column other than FortiGate Interface to open the Interface Mapping dialog box.

The Interface Mapping dialog box allows you to select **aggregate** as the interface type and up to four aggregate interface members. If you need to add additional members, edit the `set members interface` setting in the output configuration or use the FortiOS web UI to add interfaces after you import the configuration.

For other types of mappings, such as physical to VLAN, use the tuning page after the conversion is complete.

To delete an interface, select the entry and click **Delete**. This is useful if your target FortiGate has fewer interfaces than the source configuration.

Setting	Description
FortiGate Interface (table column)	Click to assign a FortiGate port for each interface. Enter a port name or custom text.
Import from file	Click to load a set of interface mappings from a text file.
Export current mappings	Saves the current set of interface mappings to a text file.
Add	Click to add a mapping item.
Edit	Click to edit additional properties for the selected mapping item.
Delete	Click to delete the selected mapping item.

VLAN and Loopback

For information only. No settings.

If necessary, you can edit this part of the configuration after the conversion process is complete, using the tuning feature.

Route Information

Double-click an item to edit it.

Setting	Description
Add	Click to add a route.
Edit	Click to edit the selected route.
Delete	Click to delete the selected route.

VPN Phase2

Setting	Description
IKE Phase1 (table column)	Select an IKE Phase1 authentication method: **pre-share** (preshared keys) or **rsa-sig** (RSA signatures).

Conversion Result

Tab	Description
Conversion Summary	Provides statistics about the conversion.
Policies Detected & Policies Created	Allows you to view and compare the number of objects that FortiConverter detected in the source configuration and the ones it created for the output configuration.
Messages & Warnings	Allows you to review any objects that FortiConverter did not include in the conversion.

Setting	Description
View in HTML	Generates an HTML page of the conversion result.
Go to Output	Opens the output folder .
Go to Tuning	Opens the tuning page. See Tuning the FortiConverter output on page 57.
Go to Report	Opens a detailed conversion report that includes a list of converted objects and policies and displays lines from the source configuration that FortiConverter did not convert.

For more information, see Viewing the results of your automatic conversion on page 56

Fortinet conversion wizard

Start Options

Setting	Description
Conversion Mode	Convert is the only supported task.

Setting	Description

Output Format	Select the type of output configuration that FortiConverter generates:
	• **FortiGate CLI** – Files that contain the output configuration as CLI commands. You restore this configuration on the target appliance manually. Select **Create a restorable config** to output these CLI commands as a configuration file you can restore.
	• **FortiGate API** – An output you restore to the target appliance directly from FortiConverter via the FortiGate API. FortiConverter also connects to the target appliance via the API to obtain interface information to use in the conversion process.
	To allow FortiConverter to use the FortiOS API, ensure that TLSv1.0 is enabled on the target appliance.
	For example, use the following CLI commands to enable TLSv1.0:
	`config system global`
	`append admin-https-ssl-versions tlsv1-0`
	`end`
	Use the following command to remove TLSv1.0 support:
	`config system global`
	`unselect admin-https-ssl-versions tlsv1-0`
	`end`

Output OS Version	Select the option that matches the OS to convert to.
Split VDOMs	Create an output configuration for each VDOM.
Create a restorable config	Specify whether FortiConverter generates configuration files that you can restore to the target device directly.
Output Directory	Select the folder where the output configuration is saved.

Configuration

Setting	Description
Source Configuration File	Select the input file.
Target Configuration File	Select the target device's default configuration. This is the device configuration before you perform any configuration tasks or after you restore the factory defaults. Available only when **Output Format** is **FortiGate CLI** (on the Start Options page).

Setting	Description
Target Device	Enter connection information for the target appliance. FortiConverter obtains information about the appliance to help complete the conversion via the FortiOS API. Available only when **Output Format** is **FortiGate API** (on the Start Options page).
Device IP	Enter the IP address of the target appliance.
User Name	Enter the user name for the target appliance.
Password	Enter the password for the target appliance.

VDOM Selection

Map the VDOMs in the source configuration to VDOMs in the output configuration.

To select multiple items in the list, do one of the following:

- Select an item, and then Ctrl + click one or more additional items.
- Select an item, and then Shift + click an additional item. The items and any items between them are selected.

Setting	Description
Enable VDOM	Select to enable VDOMs (include `config global` and `config vdom` syntax) to the output config.
Add	Click to add a mapping item after you have deleted one.
Delete	Click to delete a mapping item.

Physical Interface Mapping

To select the appropriate FortiGate interface, click the value in the FortiGate Interface column, and then select a name or enter a custom interface name.

If you selected **FortiGate API** as the output format, the list of interfaces uses the names that FortiConverter retrieved from the target appliance. You can enter a different name, if required.

To edit other values, including changing the interface from physical to aggregate, double-click a column other than FortiGate Interface to open the Interface Mapping dialog box.

The Interface Mapping dialog box allows you to select **aggregate** as the interface type and up to four aggregate interface members. If you need to add additional members, edit the `set members interface` setting in the output configuration or use the FortiOS web UI to add interfaces after you import the configuration.

For other types of mappings, such as physical to VLAN, use the tuning page after the conversion is complete.

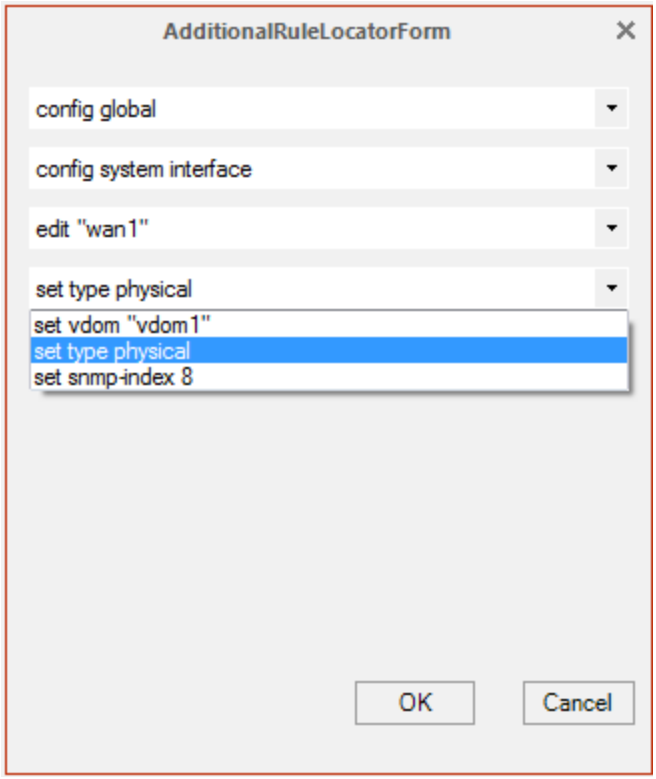
To delete an interface, select the entry and click **Delete**. This is useful if your target FortiGate has fewer interfaces than the source configuration.

Setting	Description
FortiGate Interface (table column)	Click to assign a FortiGate port for each interface. Enter a port name or custom text.
Import from file	Click to load a set of interface mappings from a text file.
Export current mappings	Saves the current set of interface mappings to a text file.
Add	Click to add a mapping item.
Edit	Click to edit additional properties for the selected mapping item.
Delete	Click to delete the selected mapping item.

Additional Rule

Setting	Description
Add	Click to open a dialog box that allows you to select rules from the source configuration to add. See the illustration "Additional rule locator window".
Import	Click to load a set of rule changes from a text file.
Export	Saves the current set of rule changes to a text file.
(rule table)	• Property (first field) – The property of the rule. You can edit this value. • Value (second field) – The property's value. You can edit this value. • Action (list) – Select either **Insert** (adds the rule to existing rules), **Modify** (to change the rule), or **Delete**. • Edit (pencil icon) – Opens the additional rule locator dialog box. • Delete (trash can icon) – Removes the rule from the list.

Additional rule locator dialog box



Conversion Result

Tab	Description
Conversion Summary	Provides statistics about the conversion.
Policies Detected & Policies Created	Allows you to view and compare the number of objects that FortiConverter detected in the source configuration and the ones it created for the output configuration.
Messages & Warnings	Allows you to review any objects that FortiConverter did not include in the conversion. For example, because of configuration changes since FortiOS 4.2, for earlier version, FortiConverter does not migrate Data Leak Prevention (DLP) settings.

Setting	Description
View in HTML	Generates an HTML page of the conversion result. For more information, see Viewing the results of your automatic conversion on page 56

Setting	Description
Go to Output	Opens the output folder. For more information, see Viewing the results of your automatic conversion on page 56
Restore	Restores the configuration to the target appliance you specified on the Configuration page. Before it restores the configuration, FortiConverter performs backup and merge tasks. When the appliance has rebooted after the restore is complete use the `config-error-log` CLI command to review any errors. Available only when **Output Format** is **FortiGate API** (on the Start Options page).

Juniper conversion wizard

By default, output configurations from Juniper do not include some configuration information, including address and service comments. For an example of how to include this information in the output, see Including object comments in the output configuration on page 30.

Start Options

Setting	Description
Model	Select the model of the source configuration.
Output Format	Select the appropriate output format for your FortiGate device.
Output OS Version	Select the version that corresponds to the FortiOS version on the target.
Discard unreferenced firewall objects	Specifies whether addresses, schedules, and services that are not referenced by a policy are saved and added to the output.
Include input configuration lines for each output policy	Specifies whether FortiConverter includes the input configuration lines used for each FortiGate policy in the FortiGate configuration as a policy comment.

Setting	Description
Adjust table sizes	Specifies whether FortiConverter uses the default maximum table sizes or allows larger table sizes and group membership in the output configuration. This is useful when, for example, the source configuration has a large address group and the target configuration can accommodate the larger group. Otherwise, FortiConverter converts the large address group into two or more smaller address groups for a single policy. By default, FortiMonitor uses the following default maximum table sizes: • **Address groups** – 2500 • **Addresses per group** – 300 • **Custom service objects** – 1024 When this option is selected, FortiMonitor uses the following maximum table sizes: • **Address groups** – 20000 • **Addresses per group** – 1500 • **Custom service objects** – 4096 You can customize the maximum table sizes that FortiMonitor uses when **Adjust table sizes** is selected. For more information, see Adjusting table sizes on page 24.
Output Directory	Select the folder where the output configuration is saved.

Source Configuration Selection

Setting	Description
Source Configuration File	Select the input file or files.

LSYS (Junos OS) or VSYS (ScreenOS) Selection

Map the logical or virtual systems in the source configuration to VDOMs in the output configuration.

To select multiple items in the list, do one of the following:

- Select an item, and then Ctrl + click one or more additional items.
- Select an item, and then Shift + click an additional item. The items and any items between them are selected.

Setting	Description
Enable VDOM	Select to enable VDOMs (add `config global` and `config vdom` syntax) to the output config.

Setting	Description
Add	Click to add a mapping item after you have deleted one.
Delete	Click to delete a mapping item.

Physical Interface Mapping

To select the appropriate FortiGate interface, click the value in the FortiGate Interface column, and then select a value or enter a custom interface name.

To edit other values, including changing the interface from physical to aggregate, double-click a column other than FortiGate Interface to open the Interface Mapping dialog box.

The Interface Mapping dialog box allows you to select **aggregate** as the interface type and up to four aggregate interface members. If you need to add additional members, edit the `set members interface` setting in the output configuration or use the FortiOS web UI to add interfaces after you import the configuration.

For other types of mappings, such as physical to VLAN, use the tuning page after the conversion is complete.

To delete an interface, select the entry and click **Delete**. This is useful if your target FortiGate has fewer interfaces than the source configuration.

Setting	Description
FortiGate Interface (table column)	Click to assign a FortiGate interface for each interface. Enter a port name or custom text.
Import from file	Click to load a set of interface mappings from a text file.
Export current mappings	Saves the current set of interface mappings to a text file.
Add	Click to add a mapping item.
Edit	Click to edit additional properties for the selected mapping item.
Delete	Click to delete the selected mapping item.

Route Information

Setting	Description
Add	Click to add a route.
Edit	Click to edit the selected route.
Delete	Click to delete the selected route.

Conversion Result

Tab	Description
Conversion Summary	Provides statistics about the conversion.
Policies Detected & Policies Created	Allows you to view and compare the number of objects that FortiConverter detected in the source configuration and the ones it created for the output configuration.
Messages & Warnings	Allows you to review any objects that FortiConverter did not include in the conversion.

Setting	Description
View in HTML	Generates an HTML page of the conversion result.
Go to Output	Opens the output folder .
Go to Tuning	Opens the tuning page. See Tuning the FortiConverter output on page 57.
Go to Report	Opens a detailed conversion report that includes a list of converted objects and policies and displays lines from the source configuration that FortiConverter did not convert.

For more information, see Viewing the results of your automatic conversion on page 56

Palo Alto conversion wizard

Start Options

Setting	Description
Model	Palo Alto is the only model supported.
Output Format	FortiGate is the only supported output.
Output OS Version	Select the version that corresponds to the FortiOS version on the target.
Discard unreferenced firewall objects	Specifies whether addresses, schedules, and services that are not referenced by a policy are saved and added to the output.
Ignore firewall policies *all* or *any* addresses	Specifies whether FortiConverter ignores addresses with an “all” or "any" address when it merges a NAT rule and a security rule to create a FortiGate NAT policy. (In most cases, this type of address matches anything.)

Setting	Description
Include input configuration lines for each output policy	Specifies whether FortiConverter includes the input configuration lines used for each FortiGate policy in the FortiGate configuration as a policy comment.
Adjust table sizes	Specifies whether FortiConverter uses the default maximum table sizes or allows larger table sizes and group membership in the output configuration. This is useful when, for example, the source configuration has a large address group and the target configuration can accommodate the larger group. Otherwise, FortiConverter converts the large address group into two or more smaller address groups for a single policy. By default, FortiMonitor uses the following default maximum table sizes: • **Address groups** – 2500 • **Addresses per group** – 300 • **Custom service objects** – 1024 When this option is selected, FortiMonitor uses the following maximum table sizes: • **Address groups** – 20000 • **Addresses per group** – 1500 • **Custom service objects** – 4096 You can customize the maximum table sizes that FortiMonitor uses when **Adjust table sizes** is selected. For more information, see Adjusting table sizes on page 24.
Output Directory	Select the folder where FortiConverter saves the output configuration.

Source Configuration

Setting	Description
Source Configuration File	Select the input file or files.

VSYS Selection

Map the virtual systems in the source configuration to VDOMs in the output configuration.

To select multiple items in the list, do one of the following:

- Select an item, and then Ctrl + click one or more additional items.
- Select an item, and then Shift + click an additional item. The items and any items between them are selected.

Setting	Description
Enable VDOM	Select to enable VDOMs (add `config global` and `config vdom` syntax) to the output config.
Add	Click to add a mapping item after you have deleted one.
Delete	Click to delete a mapping item.

Physical Interface Mapping

To select the appropriate FortiGate interface, click the value in the FortiGate Interface column, and then select a value or enter a custom interface name.

To edit other values, including changing the interface from physical to aggregate, double-click a column other than FortiGate Interface to open the Interface Mapping dialog box.

The Interface Mapping dialog box allows you to select **aggregate** as the interface type and up to four aggregate interface members. If you need to add additional members, edit the `set members interface` setting in the output configuration or use the FortiOS web UI to add interfaces after you import the configuration.

For other types of mappings, such as physical to VLAN, use the tuning page after the conversion is complete.

To delete an interface, select the entry and click **Delete**. This is useful if your target FortiGate has fewer interfaces than the source configuration.

Setting	Description
FortiGate Interface (table column)	Click to assign a FortiGate port for each interface. Enter a port name or custom text.
Import from file	Click to load a set of interface mappings from a text file.
Export current mappings	Saves the current set of interface mappings to a text file.
Add	Click to add a mapping item.
Edit	Click to edit additional properties for the selected mapping item.
Delete	Click to delete the selected mapping item.

Conversion Result

Tab	Description
Conversion Summary	Provides statistics about the conversion.
Policies Detected & Policies Created	Allows you to view and compare the number of objects that FortiConverter detected in the source configuration and the ones it created for the output configuration.

Tab	Description
Messages & Warnings	Allows you to review any objects that FortiConverter did not include in the conversion.

Setting	Description
View in HTML	Generates an HTML page of the conversion result.
Go to Output	Opens the output folder .
Go to Tuning	Opens the tuning page. See Tuning the FortiConverter output on page 57.
Go to Report	Opens a detailed conversion report that includes a list of converted objects and policies and displays lines from the source configuration that FortiConverter did not convert.

For more information, see Viewing the results of your automatic conversion on page 56

SonicWall conversion wizard

By default, output configurations from SonicWall do not include some configuration information, including address and service comments. For an example of how to include this information in the output, see Including object comments in the output configuration on page 30.

Start Options

Setting	Description
Model	SonicOS is the only model supported.
Output Format	Select the appropriate output format for your FortiGate device.
Output OS Version	Select the version that corresponds to the FortiOS version on the target.
Discard unreferenced firewall objects	Specifies whether addresses, schedules, and services that are not referenced by a policy are saved and added to the output.
Ignore firewall policies with *all* or *any* addresses	Specifies whether FortiConverter ignores addresses with an “all” or "any" address when it merges a NAT rule and a security rule to create a FortiGate NAT policy. (In most cases, this type of address matches anything.)
Include input configuration lines for each output policy	Specifies whether FortiConverter includes the input configuration lines used for each FortiGate policy in the FortiGate configuration as a policy comment.

Setting	Description
Adjust table sizes	Specifies whether FortiConverter uses the default maximum table sizes or allows larger table sizes and group membership in the output configuration. This is useful when, for example, the source configuration has a large address group and the target configuration can accommodate the larger group. Otherwise, FortiConverter converts the large address group into two or more smaller address groups for a single policy. By default, FortiMonitor uses the following default maximum table sizes: • **Address groups** – 2500 • **Addresses per group** – 300 • **Custom service objects** – 1024 When this option is selected, FortiMonitor uses the following maximum table sizes: • **Address groups** – 20000 • **Addresses per group** – 1500 • **Custom service objects** – 4096 You can customize the maximum table sizes that FortiMonitor uses when **Adjust table sizes** is selected. For more information, see Adjusting table sizes on page 24.
Output Directory	Select the folder where FortiConverter saves the output configuration.

Source Configuration

Setting	Description
Source Configuration File	Select the input file or files.

VSYS Selection

Map the virtual systems in the source configuration to VDOMs in the output configuration.

To select multiple items in the list, do one of the following:

- Select an item, and then Ctrl + click one or more additional items.
- Select an item, and then Shift + click an additional item. The items and any items between them are selected.

Setting	Description
Enable VDOM	Select to enable VDOMs (add `config global` and `config vdom` syntax) to the output config.

Setting	Description
Add	Click to add a mapping item after you have deleted one.
Delete	Click to delete a mapping item.

Physical Interface Mapping

To select the appropriate FortiGate interface, click the value in the FortiGate Interface column, and then select a value or enter a custom interface name.

To edit other values, including changing the interface from physical to aggregate, double-click a column other than FortiGate Interface to open the Interface Mapping dialog box.

The Interface Mapping dialog box allows you to select **aggregate** as the interface type and up to four aggregate interface members. If you need to add additional members, edit the `set members interface` setting in the output configuration or use the FortiOS web UI to add interfaces after you import the configuration.

For other types of mappings, such as physical to VLAN, use the tuning page after the conversion is complete.

To delete an interface, select the entry and click **Delete**. This is useful if your target FortiGate has fewer interfaces than the source configuration.

Setting	Description
FortiGate Interface	Click to assign a FortiGate port for each interface.
(table column)	Enter a port name or custom text.
Import from file	Click to load a set of interface mappings from a text file.
Export current mappings	Saves the current set of interface mappings to a text file.
Add	Click to add a mapping item.
Edit	Click to edit additional properties for the selected mapping item.
Delete	Click to delete the selected mapping item.

VLAN and Loopback

For information only. No settings.

Route Information

Setting	Description
Add	Click to add a route.
Edit	Click to edit the selected route.
Delete	Click to delete the selected route.

Conversion Result

Tab	Description
Conversion Summary	Provides statistics about the conversion.
Policies Detected & Policies Created	Allows you to view and compare the number of objects that FortiConverter detected in the source configuration and the ones it created for the output configuration.
Messages & Warnings	Allows you to review any objects that FortiConverter did not include in the conversion.

Setting	Description
View in HTML	Generates an HTML page of the conversion result.
Go to Output	Opens the output folder .
Go to Tuning	Opens the tuning page. See Tuning the FortiConverter output on page 57.
Go to Report	Opens a detailed conversion report that includes a list of converted objects and policies and displays lines from the source configuration that FortiConverter did not convert.

For more information, see Viewing the results of your automatic conversion on page 56

Snort conversion wizard

Start Options

Setting	Description
Output FortiOS Version	FortiOS 2.x, 4.x, and 5.x have different configuration syntaxes. Select the version that corresponds to the FortiOS version on the target.
Snort Rules	Select the input file.
Convert annotated rules as *status disable*	Select to disable rules that are annotated in the source configuration.

Setting	Description
Adjust table sizes	Specifies whether FortiConverter uses the default maximum table sizes or allows larger table sizes and group membership in the output configuration. This is useful when, for example, the source configuration has a large address group and the target configuration can accommodate the larger group. Otherwise, FortiConverter converts the large address group into two or more smaller address groups for a single policy. By default, FortiMonitor uses the following default maximum table sizes: • **Address groups** – 2500 • **Addresses per group** – 300 • **Custom service objects** – 1024 When this option is selected, FortiMonitor uses the following maximum table sizes: • **Address groups** – 20000 • **Addresses per group** – 1500 • **Custom service objects** – 4096 You can customize the maximum table sizes that FortiMonitor uses when **Adjust table sizes** is selected. For more information, see Adjusting table sizes on page 24.
Snort Variable Definition	Optionally, select the Snort variable definition file (for example, `snort.conf`)
Output Directory	Select the folder where FortiConverter saves the output configuration.

Rule Variables

Setting	Description
IP Variables	Click a value to edit it, if required.
Port Variables	Click a value to edit it, if required.

Conversion Result

Setting	Description
Go to Output	Opens the output folder .
Go to Report	Opens an HTML page that displays the conversion mapping.

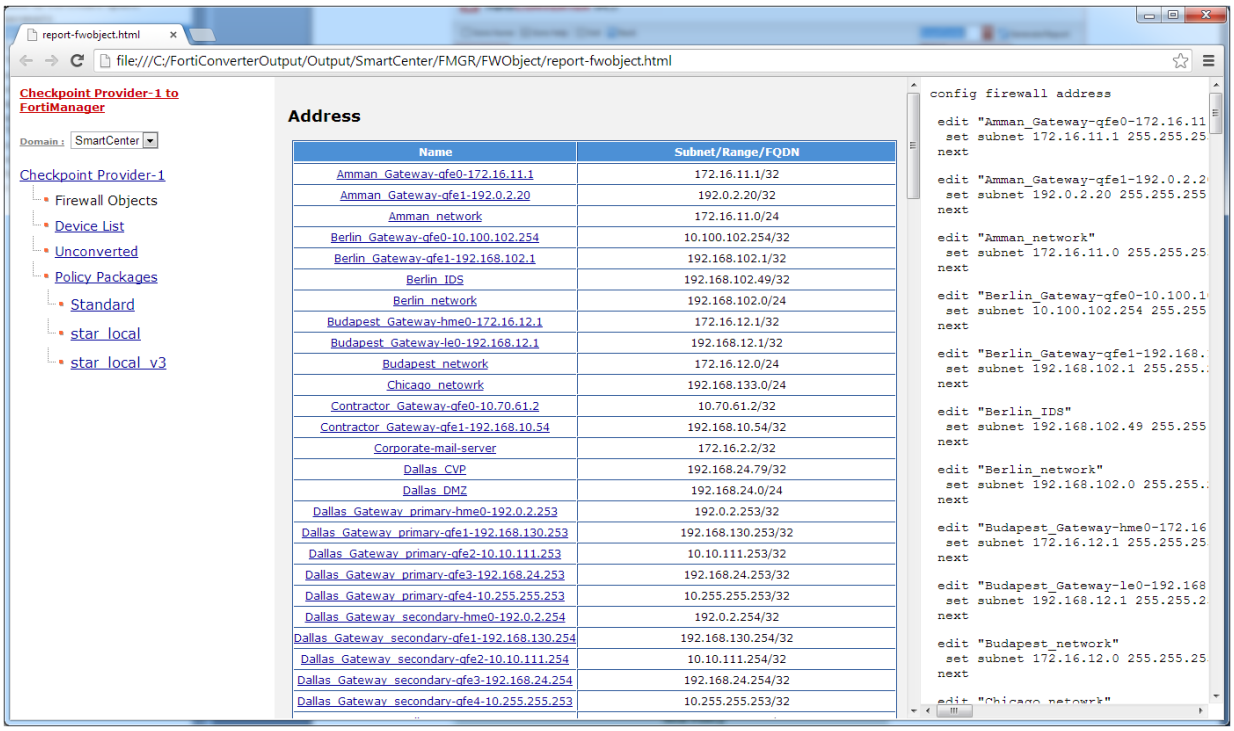
For more information, see Viewing the results of your automatic conversion on page 56

Viewing the results of your automatic conversion

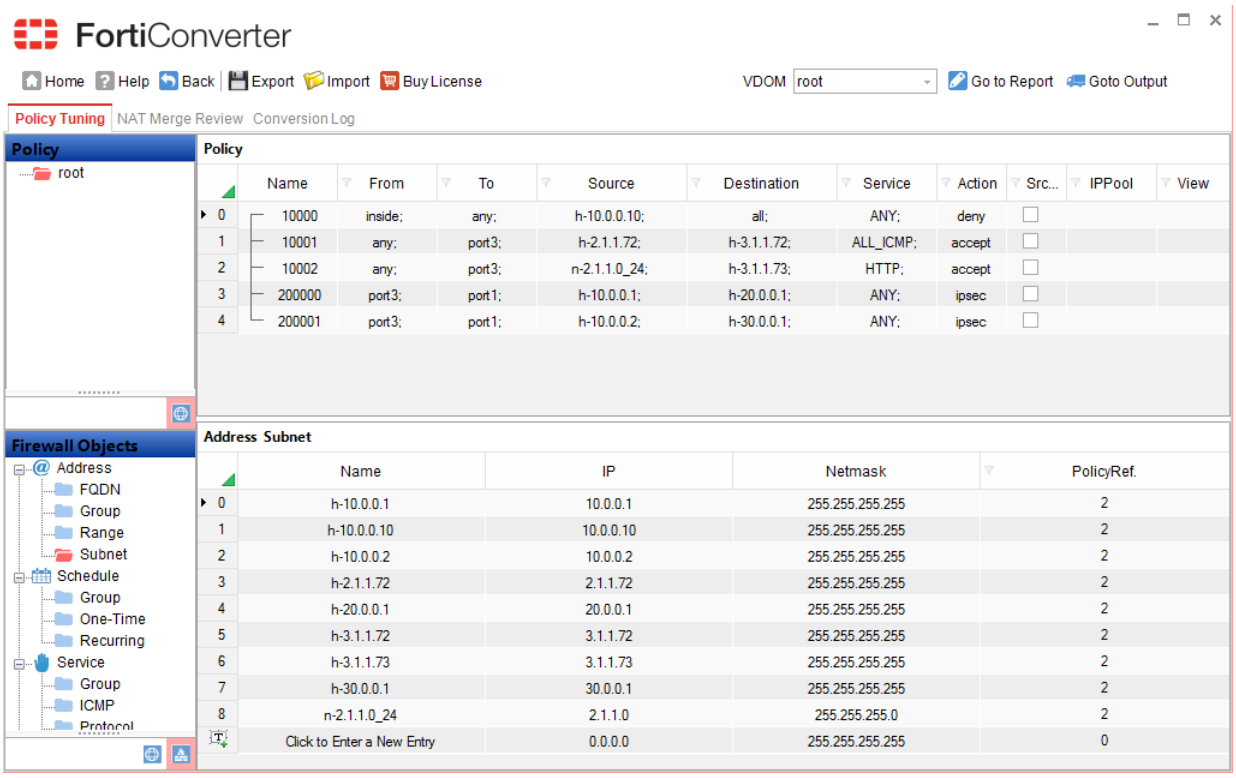
The Conversion Result page displays general conversion information, statistics on of the number of converted objects and policies, and a log of items that need further attention.

To see a summary of the conversion, click **Go to Report**.

An HTML page generated by FortiConverter is displayed in your web browser.



To examine the converted objects and policies in detail, click **Go to Tuning**. A window that allows you to tune the output is displayed.



After your review and any tuning tasks are complete, click **Go to Output** to access the final, converted configuration files.

Tuning the FortiConverter output

Although FortiConverter attempts to automatically convert as much of the source configuration as possible, in some cases, your input is required to complete the conversion. The Tuning page allows you to tune the results for your environment. To access the Tuning page, on the Conversion Result page, click **Go to Tuning**.

To quickly view a tuning "snapshot" (a configuration that you exported from the tuning page earlier), open the wizard for the appropriate vendor, click **Tuning** on any page, and then navigate to the snapshot file to import it.

Toolbar options

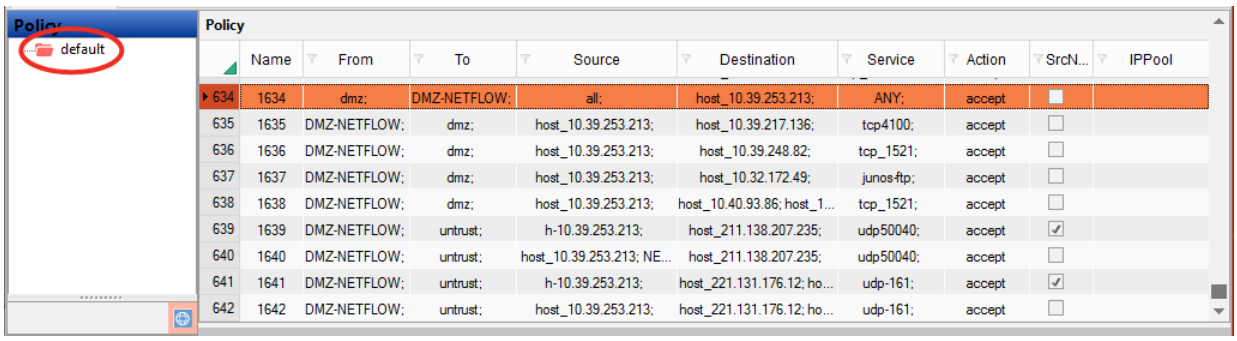
Item	Description
Home	Click to return to the main page.
Help	Click to open the latest version of this guide.

Item	Description
Back	Click to return to the Conversion Result page. FortiConverter preserves any changes but does not save them in an output file. (Use **Generate Report** to save changes to an output file.)
Backup	Click to save the current configuration, including any modifications, to a text file (a tuning "snapshot").
Restore	Click to import a configuration you exported earlier (a tuning "snapshot"). FortiConverter discards any changes in the current configuration.
Export Policies	Click to export policies as a comma-separated values (CSV) format file.
Import Policies	Click to import policies from a comma-separated values (CSV) format file.
VDOM	Select the VDOM in the output to display in the Tuning page.
Go to Report	Click to export the current configuration, including any modifications to an output configuration file .
Go to Output	Click to view the files for the current configuration, including any modifications.

Policy Tuning tab

The Policy Tuning tab allows you to review output policies and converted objects.

To review output policies, in the Policy navigation pane, select a package. The converted policies in the package are displayed.

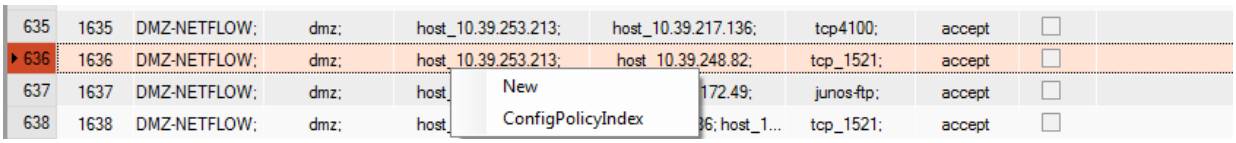


To add a new policy to a package

1. Right-click a policy, and then click **New**.
2. Complete the settings, and then click **OK**.

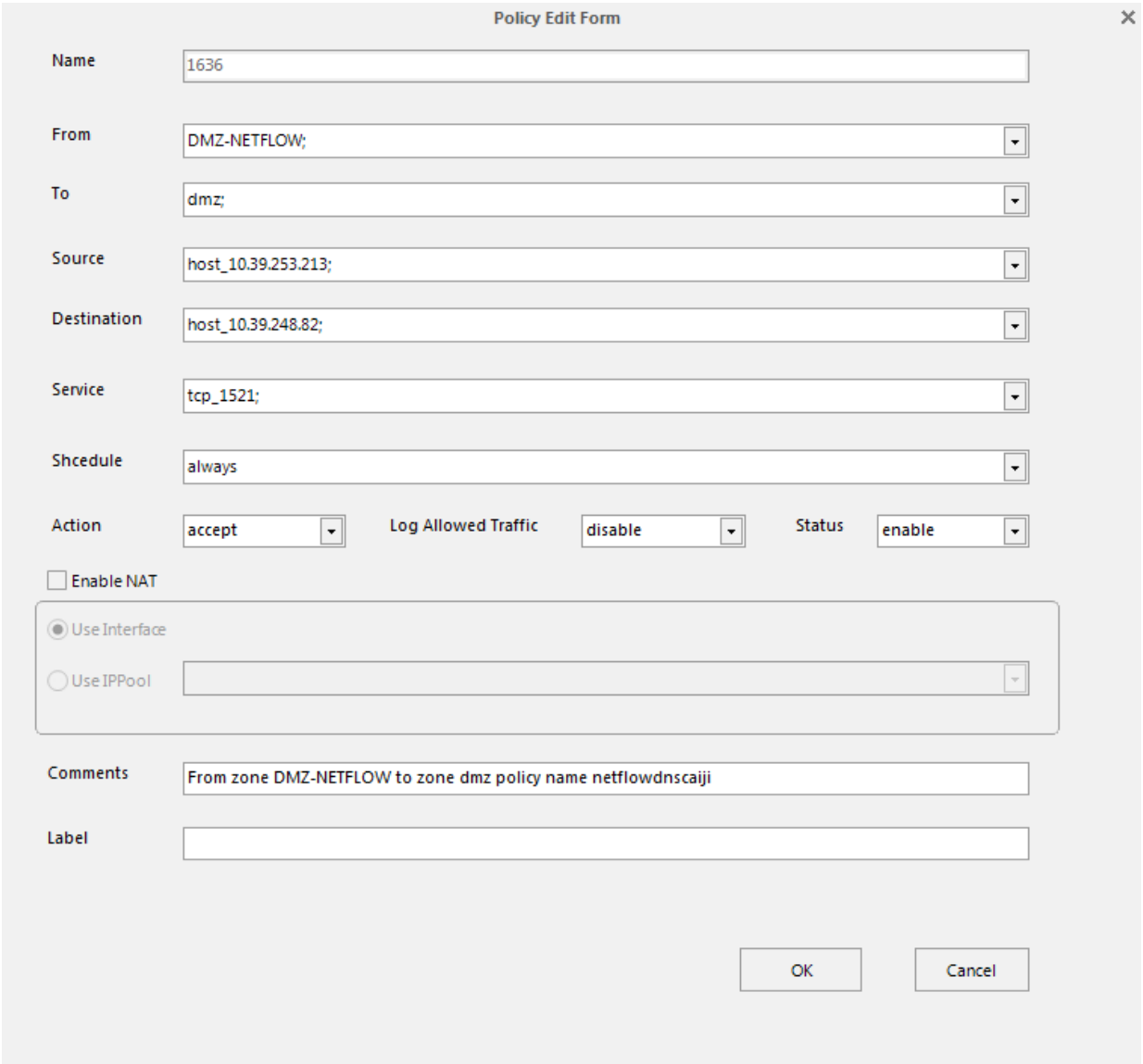
To renumber the policies

1. Right-click the policy where you want the numbering to restart, and then click **ConfigPolicyIndex**.
2. For **Set Policy Index Start With**, enter the initial policy number to use, and then click **OK**.



To edit the details for a converted policy

Double-click the policy and edit the settings as required.



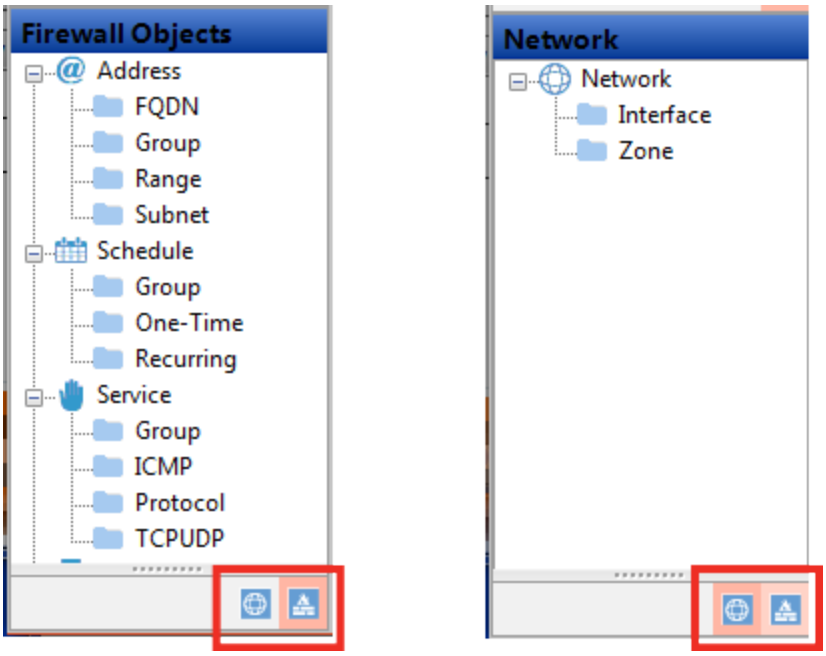
Item	Description
Name	You cannot edit this value.
From	Select source interface(s).

Item	Description
To	Select destination interface(s).
Source	Select source address object(s).
Destination	Select destination address object(s).
Service	Select service object(s).
Schedule	Select schedule object. – select to enable NAT, and then select to use Interface or IPPool Comments – modify the comments for the policy Label – modify the label of the policy
Action	Specify whether traffic is accepted or denied.
Log Allowed Traffic	Specify whether logging is enabled.
Status	Specify whether the policy is enabled.
Enable NAT	Select to enable NAT, and then do one of the following: • Select **User Interface**. • Select **Use IPPool** and specify a pool.
Comments	Edit the comments for the policy.
Label	Edit the label for the policy.

To review and edit firewall objects and interfaces

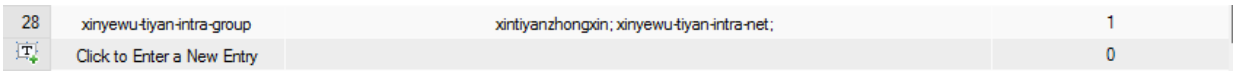
1. Go to the navigation pane at the bottom-left of the Policy Tuning tab.

   Click the icons at the bottom of the pane to switch between firewall objects and interfaces.



2. To view objects, select a category in the navigation pane.

3. To add a new object, scroll to the bottom of the list, click in an empty row, and then complete the fields as required.



4. The PolicyRef column displays the number of policies that reference that firewall object.

   Click the PolicyRef. column for the entry to display the specific policies in the Policy table above.

   You cannot delete objects that are referenced by any other part of the configuration.

To filter rows to display only matching data

You can filter every column that has the [filter mark] by a given option or custom expression.

To delete a line of the configuration

Click the policy or object you want to delete to select it, and then press the Delete key.

You cannot delete items that are used by another policy or group.

To reorder rows

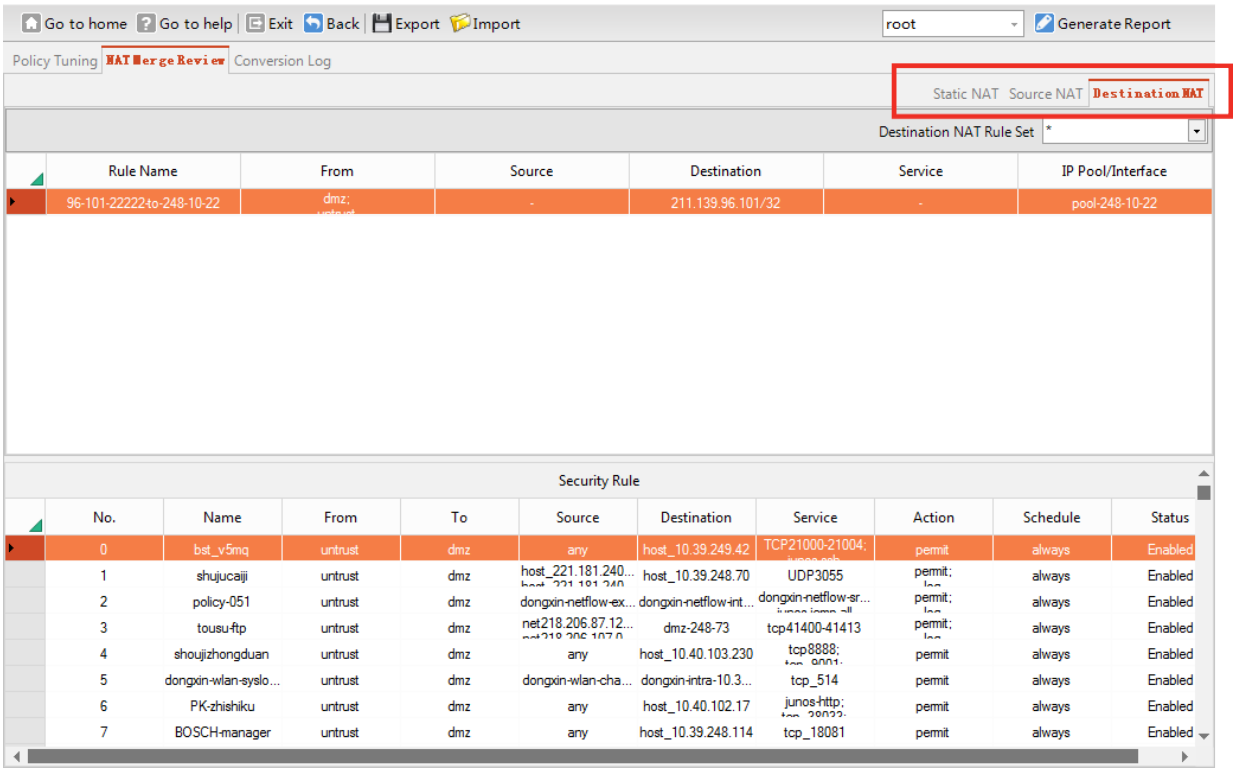
To reorder rows, click the policy number and drag the row to the new position.

NAT Merge Review tab

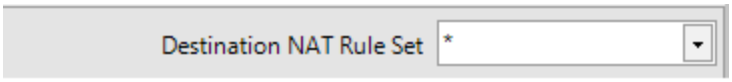
Currently, the NAT Merge Review tab allows you to review of the NAT policy conversion logic for Juniper Junos OS and Check Point conversions only.

Junos NAT Merge Review

You can use the sub-tabs in the top-right corner to select the NAT category to display: Source NAT, Destination NAT, Static NAT, Object NAT, Double NAT, and NAT Rule. The source configuration determines which categories are available.

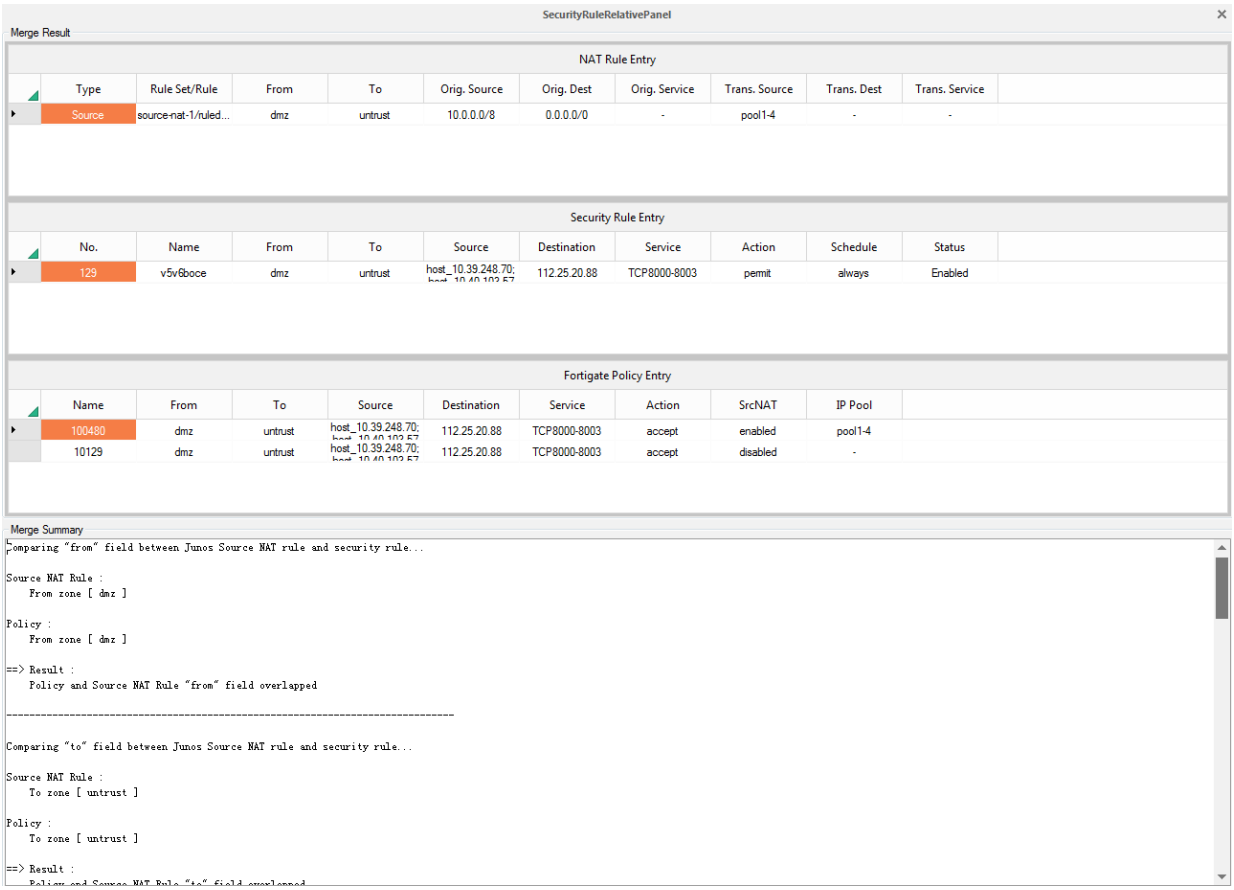


To display a particular rule set from the source configuration, for **Destination NAT Rule Set**, select the appropriate value.



The top pane of the NAT Merge Review tab is a list of NAT rules from the source configuration. Double-click a NAT rule to display the corresponding items in the Security Rule list (bottom pane).

Double-click a security rule to open the Merge Result window.



The Merge Result window displays the NAT rule, the security rule, and the resulting FortiGate policies.

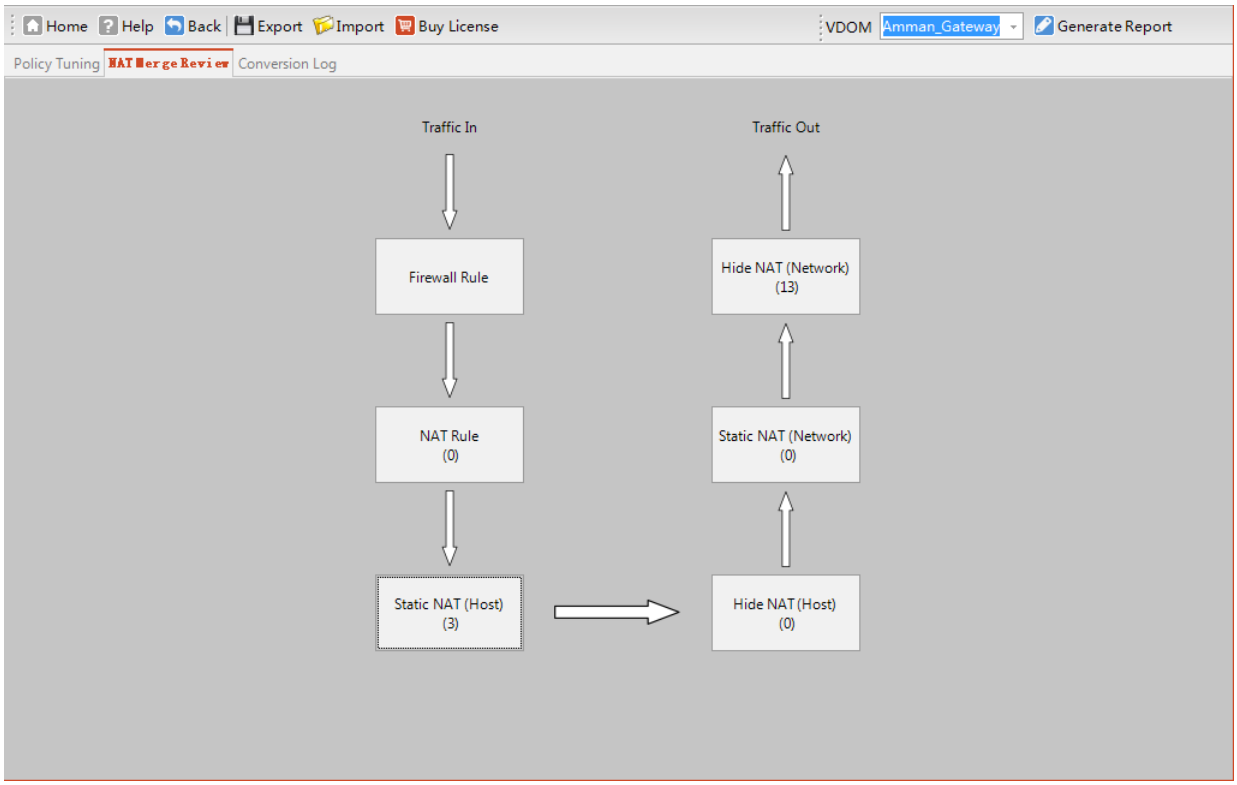
Policies that FortiConverter generated from a security rule from the source configuration have a five-digit name that is 10000 or higher .

Policies that FortiConverter generated by merging a NAT rule and security rule from the source configuration have a six-digit name that is 100000 or higher.

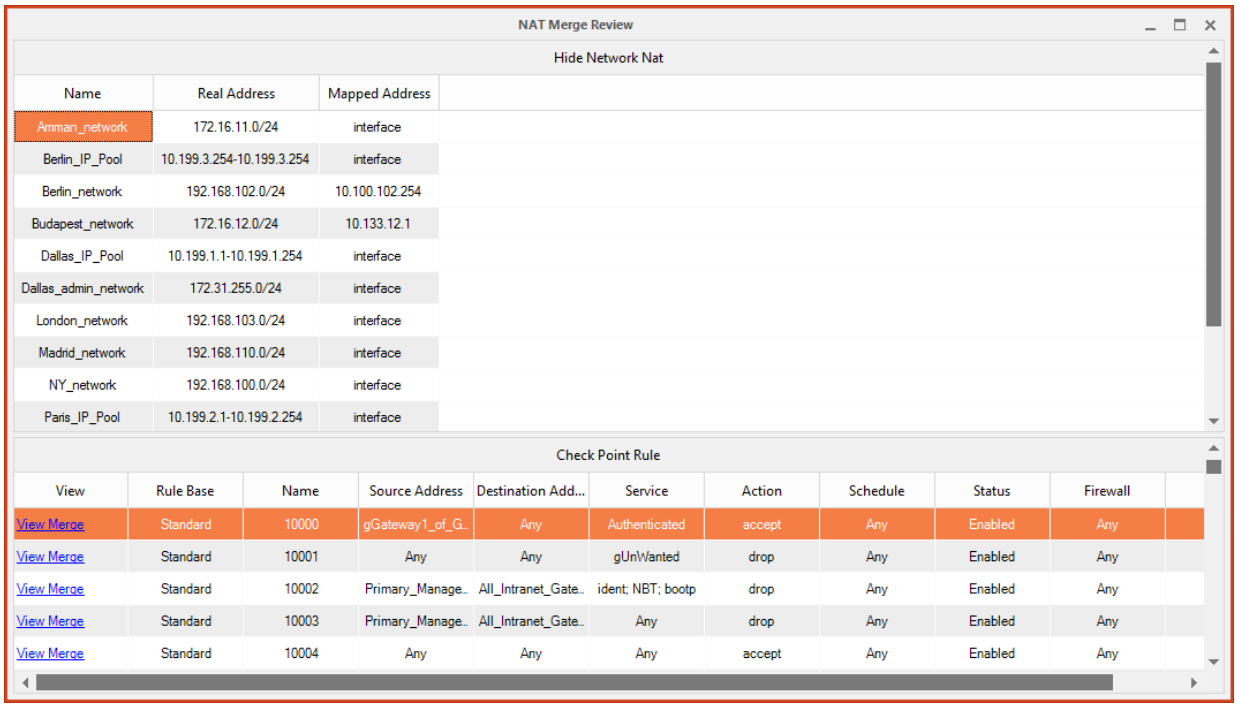
The Merge Summary provides a step-by-step description of the merge logic.

Check Point NAT Merge Review

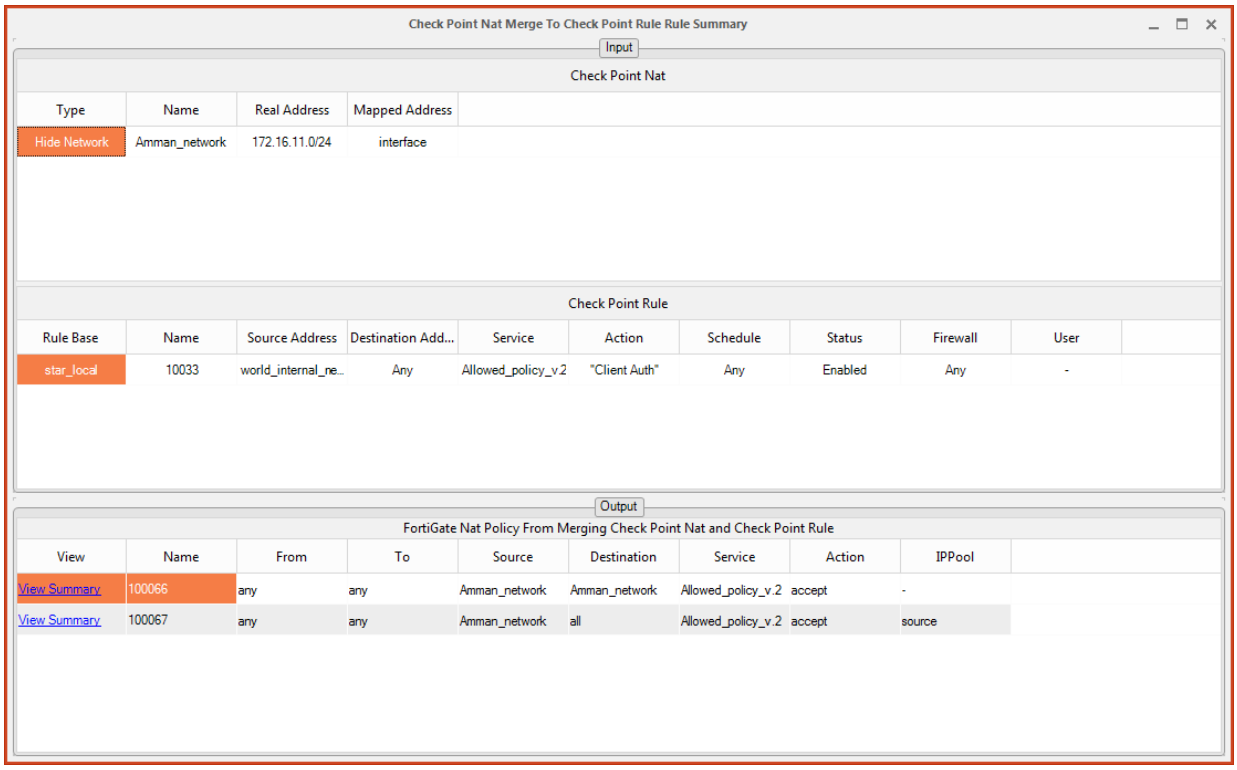
For Check Point, the NAT merge review tab displays the different NAT types as tiles in a diagram.



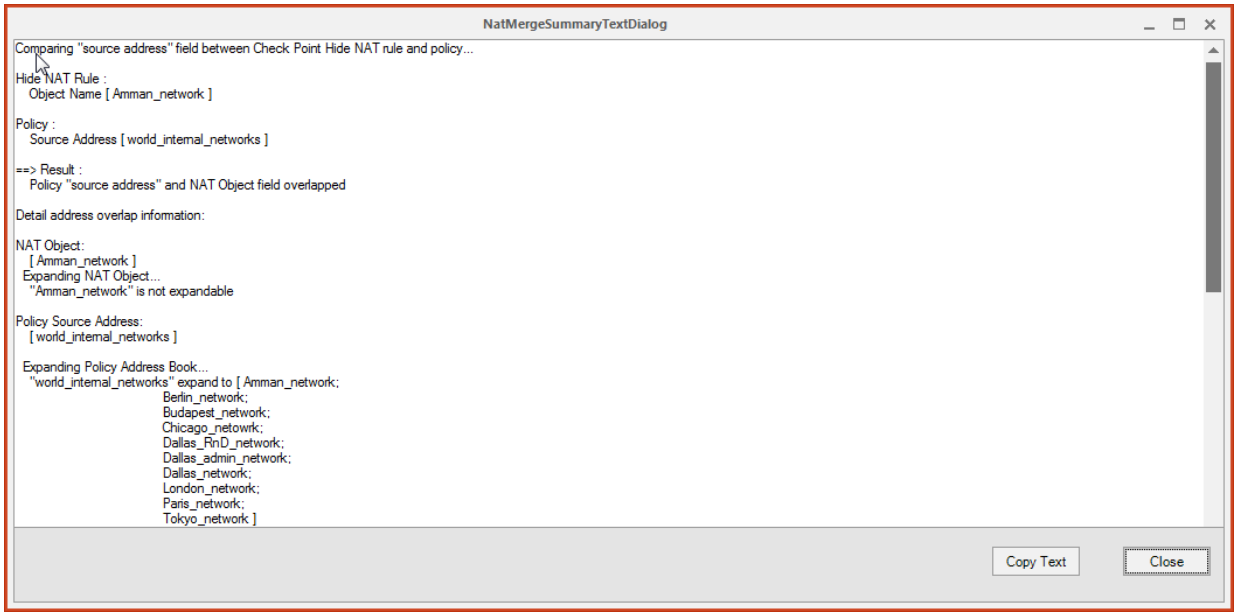
Click a tile to access the NAT rules and merge logs for that NAT type.



Click a network name, and then click **View Merge** to display detailed information about the input and output rules.

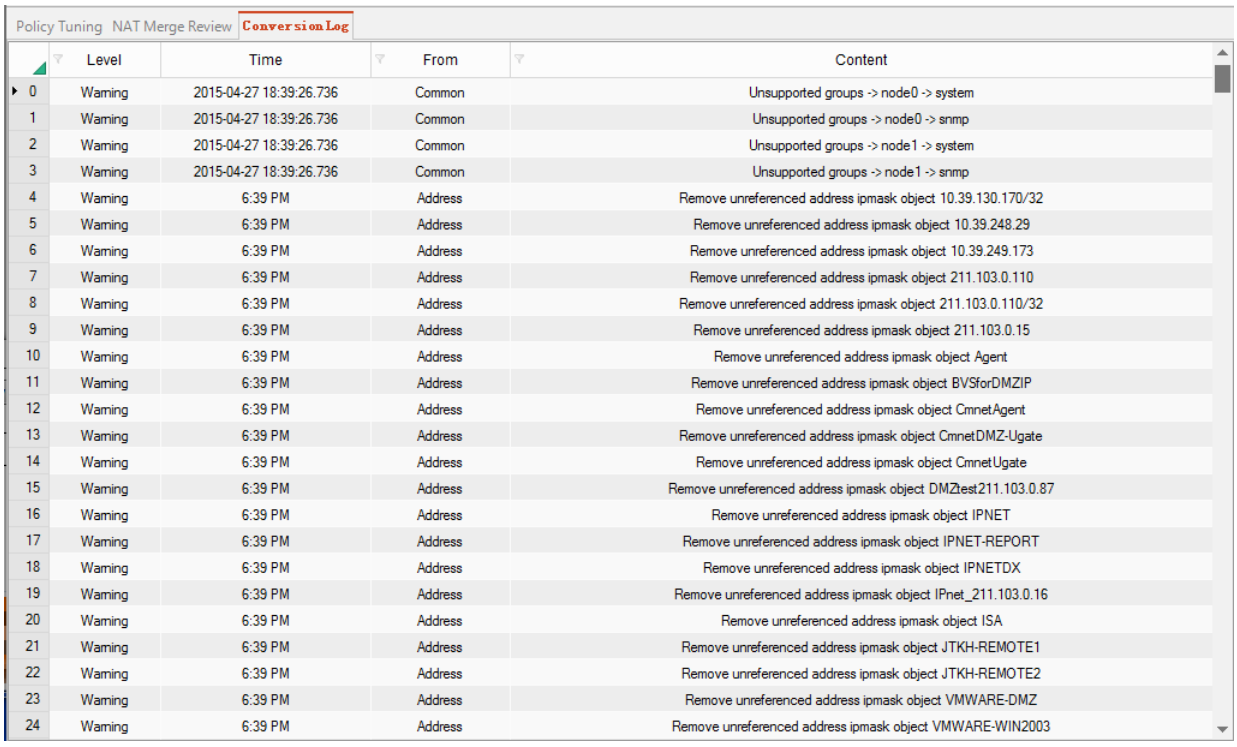


To view conversion log information about the merge, click **View Summary**.



Conversion log tab

The Conversion Log tab displays warnings that FortiConverter generated during the conversion process.



Policy Tuning | NAT Merge Review | Conversion Log

	Level	Time	From	Content
0	Warning	2015-04-27 18:39:26.736	Common	Unsupported groups -> node0 -> system
1	Warning	2015-04-27 18:39:26.736	Common	Unsupported groups -> node0 -> snmp
2	Warning	2015-04-27 18:39:26.736	Common	Unsupported groups -> node1 -> system
3	Warning	2015-04-27 18:39:26.736	Common	Unsupported groups -> node1 -> snmp
4	Warning	6:39 PM	Address	Remove unreferenced address ipmask object 10.39.130.170/32
5	Warning	6:39 PM	Address	Remove unreferenced address ipmask object 10.39.248.29
6	Warning	6:39 PM	Address	Remove unreferenced address ipmask object 10.39.249.173
7	Warning	6:39 PM	Address	Remove unreferenced address ipmask object 211.103.0.110
8	Warning	6:39 PM	Address	Remove unreferenced address ipmask object 211.103.0.110/32
9	Warning	6:39 PM	Address	Remove unreferenced address ipmask object 211.103.0.15
10	Warning	6:39 PM	Address	Remove unreferenced address ipmask object Agent
11	Warning	6:39 PM	Address	Remove unreferenced address ipmask object BVSforDMZIP
12	Warning	6:39 PM	Address	Remove unreferenced address ipmask object CmnetAgent
13	Warning	6:39 PM	Address	Remove unreferenced address ipmask object CmnetDMZ-Ugate
14	Warning	6:39 PM	Address	Remove unreferenced address ipmask object CmnetUgate
15	Warning	6:39 PM	Address	Remove unreferenced address ipmask object DMZtest211.103.0.87
16	Warning	6:39 PM	Address	Remove unreferenced address ipmask object IPNET
17	Warning	6:39 PM	Address	Remove unreferenced address ipmask object IPNET-REPORT
18	Warning	6:39 PM	Address	Remove unreferenced address ipmask object IPNETDX
19	Warning	6:39 PM	Address	Remove unreferenced address ipmask object IPnet_211.103.0.16
20	Warning	6:39 PM	Address	Remove unreferenced address ipmask object ISA
21	Warning	6:39 PM	Address	Remove unreferenced address ipmask object JTKH-REMOTE1
22	Warning	6:39 PM	Address	Remove unreferenced address ipmask object JTKH-REMOTE2
23	Warning	6:39 PM	Address	Remove unreferenced address ipmask object VMWARE-DMZ
24	Warning	6:39 PM	Address	Remove unreferenced address ipmask object VMWARE-WIN2003

Importing your new configuration into FortiGate

Conversion to FortiGate output

When you convert a source configuration to a FortiGate configuration, FortiConverter puts the conversion result in your output directory's FGT/ folder. This folder contains the conversion reports in HTML and the CLI configuration in the text file `config-cmd.txt`.

The `config-cmd.txt` file header contains basic import instructions. The converted objects and polices are located after the header and can consist of several thousand lines of configuration.

Preparing the output configuration file for import

Before you import the output configuration, search the file for any comments that indicate issues that FortiConverter detected during the conversion (such as missing objects or conflicting object values) and fix them. To locate these comments, search for lines that start with `#` (number/hash symbol). You cannot successfully import the configuration if you do not fix these issues.

Fortinet recommends that you divide the configuration into sections, and then import one section at a time. If a section is large, divide it into smaller sections.

Importing the configuration file sections

To import the sections of the output configuration file, Fortinet recommends that you use the **Upload Bulk CLI Command File** option at one of the following locations:

- **System > Config > Advanced** (FortiOS 5.2)
- **System > Advanced** (FortiOS 5.4)

Because you cannot successfully import a section of configuration that references an object that does not already exist in the configuration, ensure that you import the configuration sections in their original order. For example, you typically import polices last because they reference interfaces, addresses, users, services, IPsec phase1s, security policies, and so on. If these objects are missing, FortiGate does not accept the policy.

CLI debugging

To make troubleshooting easier when there are import errors, before you import sections, enable CLI debugging.

By default, CLI debugging is level 3. This is the level to use under normal conditions.

You can use the following command to view the current debug level:

```
# diagnose debug info
```

A response similar to the following information is displayed:

```
debug output: disable
console timestamp: disable
console no user log message: disable
CLI debug level: 3
```

For the configuration importing process, the appropriate debug level is 8. Use the following command to change the debug level:

```
diag debug enable
diag debug CLI 8
```

When the import process is complete, use the following command to return the debug level to the default (3):

```
diag debug reset
```

Importing process

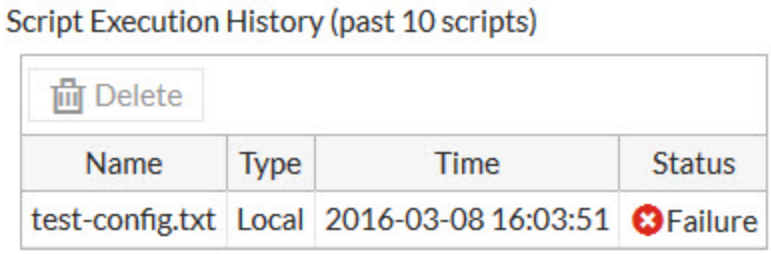
Import the sections of the conversion output systematically. For each section you import, check for import failures in the web UI Script Execution History. Use CLI debugging to diagnose and fix any errors. When the web UI indicated the import is completely successful, continue with the next section of the configuration.

Example import error and troubleshooting

The following simple configuration generates an error because Test3 is not defined:

```
config firewall address
   edit "Test1"
      set subnet 1.1.1.1 255.255.255.255
   next
   edit "Test2"
      set subnet 1.1.1.2 255.255.255.255
   next
end
config firewall addrgrp
   edit "Test-Addresses"
      set member "Test1" "Test2" "Test3"
   next
end
```

When you save this configuration as a file and import it, the web UI displays the status Failure:



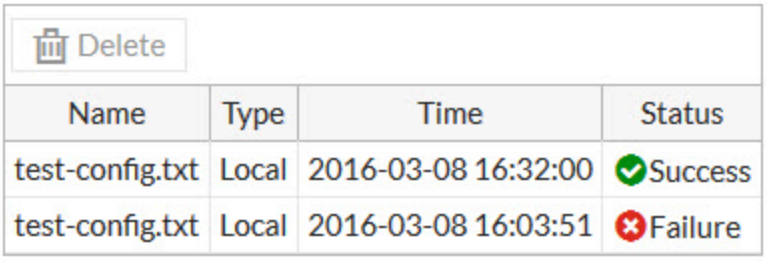
The following CLI output captures detailed information about the error:

```
0: config firewall address
0: edit "Test1"
0: set subnet 1.1.1.1 255.255.255.255
0: next
0: edit "Test2"
0: set subnet 1.1.1.2 255.255.255.255
0: next
0: end
0: config firewall addrgrp
0: edit "Test-Addresses"
-3: set member "Test1" "Test2" "Test3"
1: next
0: endwrite config file success, prepare to save in flash
```

The error code `-3` indicates that FortiGate did not find the object and the return code `1` indicates that an error occurred.

Notice that FortiGate creates the address objects Test1 and Test2. The failure status in the web UI only relates to the address group.

When you fix the script by adding the missing Test3 object and import it again, the web UI displays the status Success.



When the configuration is fixed, all the return codes in the CLI debugging are `0`, which indicates no errors.

```
0: config firewall address
0: edit "Test1"
0: set subnet 1.1.1.1 255.255.255.255
0: next
0: edit "Test2"
0: set subnet 1.1.1.2 255.255.255.255
0: next
0: edit "Test3"
0: set subnet 1.1.1.3 255.255.255.255
0: next
0: end
0: config firewall addrgrp
0: edit "Test-Addresses"
0: set member "Test1" "Test2" "Test3"
0: next
0: endwrite config file success, prepare to save in flash
```

Importing your new configuration into FortiManager

The example in the procedures uses FortiManager 5.2 and global policies and objects. The procedures are similar for environments that do not use the global feature.

To configure FortiManager

On FortiManager, enable the ADOM feature and create an ADOM for each source domain that you want to migrate.

Ensure that all the ADOMs (including the global ADOM) use the same version of FortiOS.

Name	Type	Device	VPN Management
Central Management (4)			
FortiCarrier	FortiCarrier 5.2		Policy & Device VPNs
MyADOM	FortiGate 5.2		Policy & Device VPNs
root	FortiGate 5.2		Policy & Device VPNs
Global Database	Global 5.2		

The output folder

The output folder provides both a global folder and a folder for each source domain. Both folders contain the subfolder `FMGR\`.

Object configuration is located in the `FMGR\FWObject\` folder, which contains the following files:

- Several text and HTML files that are used for reporting. They are not used to import the configuration.
- The text file `config-all` , which contains all the CLI commands for the object configuration.
- Text files that duplicate sections of the `config-all` file: `address`, `address groups`, `services`, `scheduled`, and so on. When there are many objects (for example, most environments have many firewall address objects), these sections are divided into multiple, indexed files. To make the import process simpler, Fortinet recommends that you import configurations using the files for individual sections.

Policy scripts are located in policy package folders in `\FMGR\Policy` as one or more firewall policy files (`config-firewall-policy-1`, `config-firewall-policy-2`, and so on).These files are the same content as the conversion output file `config-all` in smaller, indexed files that are easier to import.

Running scripts

With the exception of `config-system-session-helper`, you run all scripts using the **Policy Package, ADOM Database** script target.

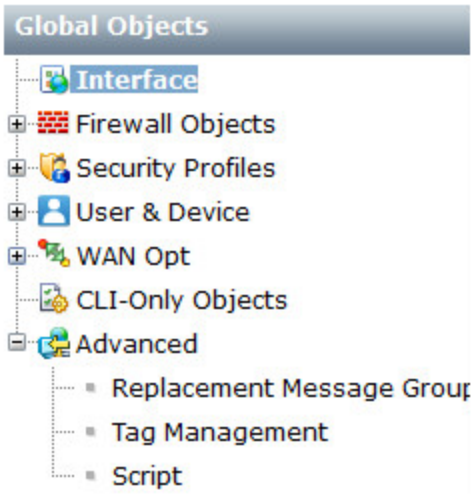
You run the `config-system-session-helper` script on the device database to set device-level settings.

If the global folder contains a `config-system-session-helper` script, review its contents. In most cases, it is not required because the global policies and objects configuration does not contain devices. You can add any configuration in this script to session helper scripts for each domain that uses the global objects. However, in most cases, the domain-level script also contains these settings.

To import policies and objects

You import your global object and policies first because the ADOM configuration can depend on them. Import objects before policies because polices depend on objects.

1. In the FortiManager system settings, to enable scripts, go to **System Settings > Admin > Admin Settings**. Under **Display Options on GUI**, select **Show Script**.
2. To display the scripts in the Global Objects menu, on the Policy & Objects tab, go to **Tools > Display Options > All On**.
3. Go to **Global Objects > Advanced > Script**.



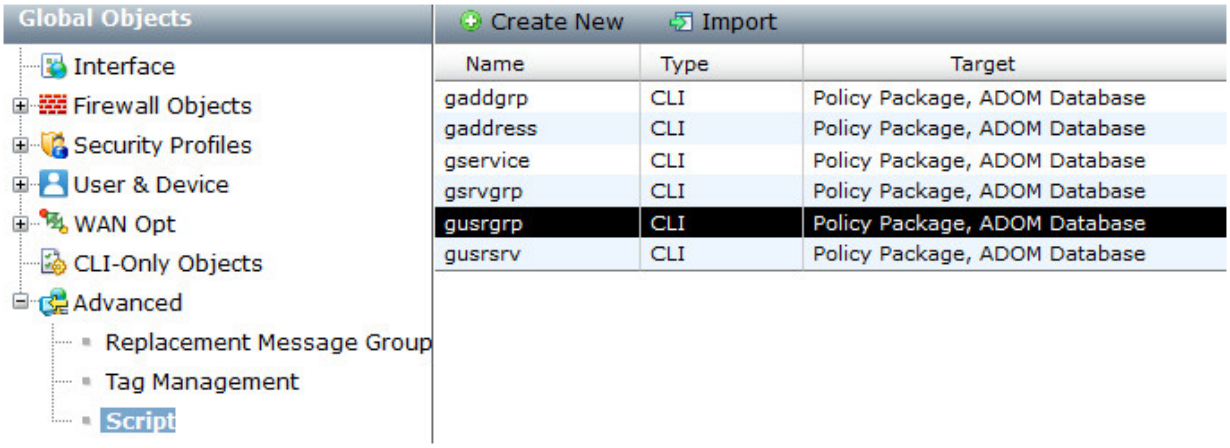
The list of global scripts is displayed.

4. Click **Import**, enter a name for the script you are importing, and then click **Browse** to navigate to and select a script from the `Global\FMGR\FWObject` folder.

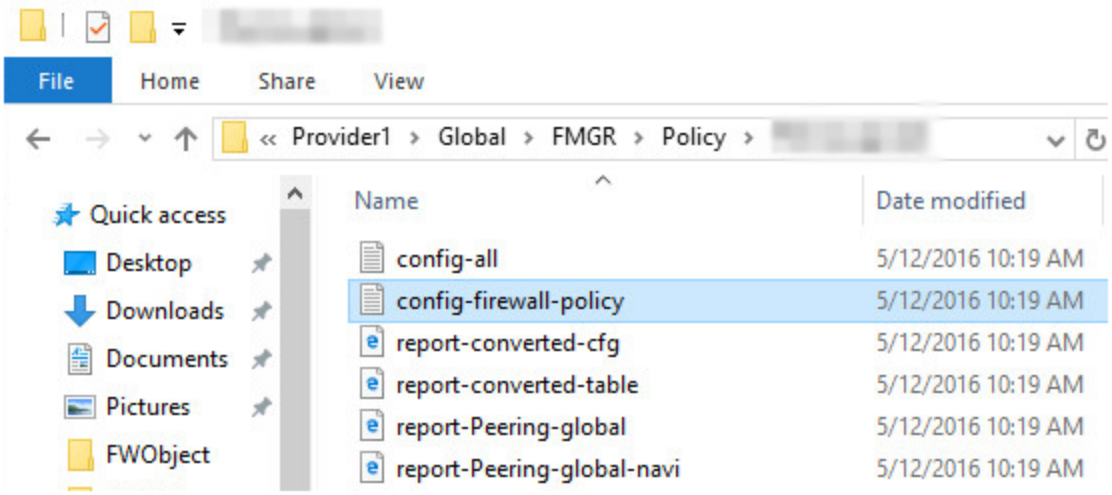
   For more information on the output folders and files, see The output folder on page 70.
5. For the script target, select **Policy Package, ADOM Database**, and then select **OK**.
6. When the import is complete, review any error messages that FortiConverter inserted as comments and make any required corrections. For more information, see To troubleshoot script import and execution errors on page 74.
7. To run the script, right-click it, and then select **Run**. Because global objects are applied to all ADOMs by default, for **Run script on policy package**, you can use the default policy package.

   If the script execution fails, troubleshoot the process and make any required changes. For more information, see To troubleshoot script import and execution errors on page 74.

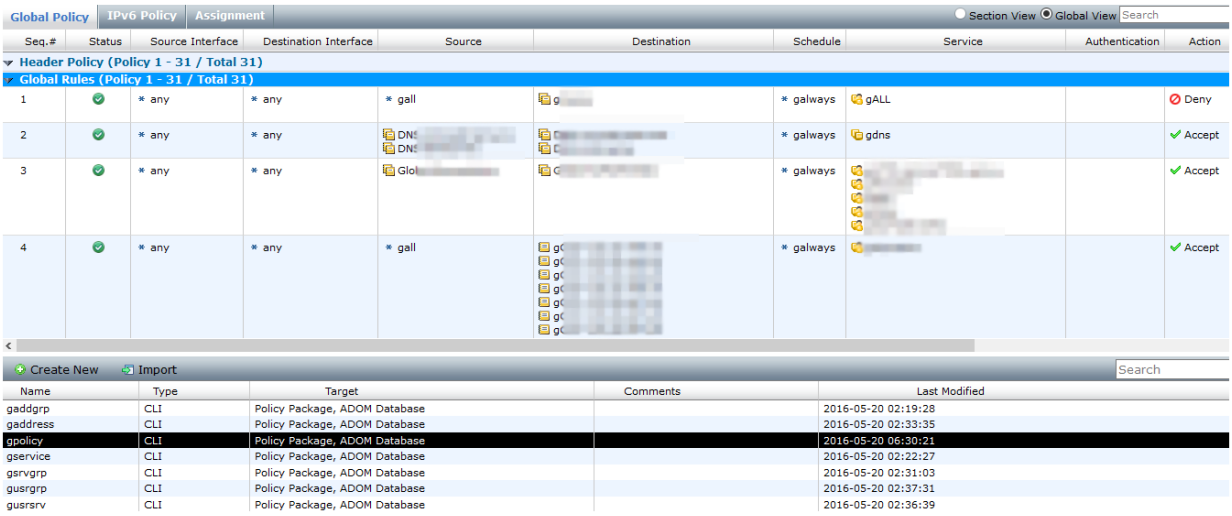
8. Repeat the script import and run process for all the scripts in the `Global\FMGR\FWObject` folder.



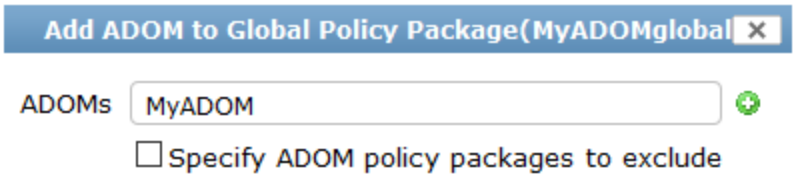
9. When you have imported all the objects, use the same procedures to import and run the policy scripts using the firewall policy configuration files located in the `Global\FMGR\Policy` folder, which contains a folder for each policy package. Do not import the `config-all` file.



After the scripts have run successfully, review the policies.

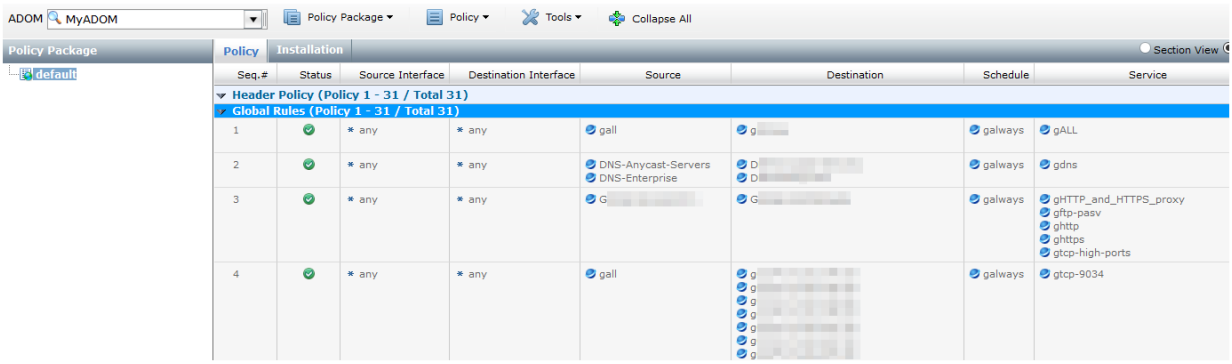


10. When the policy package is correct, assign it to your ADOM. By default, FortiManager assigns the selected policy package to all policy packages in the ADOM.



11. To complete the ADOM assignment, on the Assignment tab, click **Assign**.

12. When the process of assigning the polices and objects is complete, on the Policies & Objects tab, select the ADOM to review the policies.



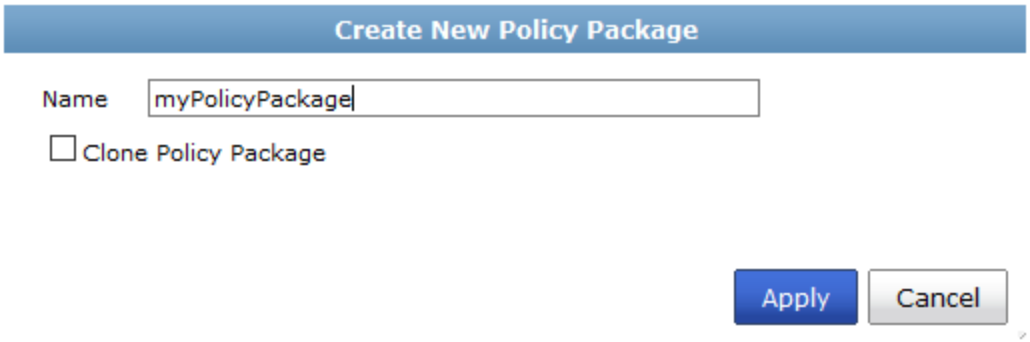
13. To import the domain-level polices and objects into your ADOM, on the Device Manager tab, select the ADOM, and then go to **Scripts > Script**.

14. Repeat the procedure for importing the object and policy scripts with the contents of the `<domain_name>\FMGR\FWObject` and `<domain_name>\FMGR\Policy` folders. Import the objects first.

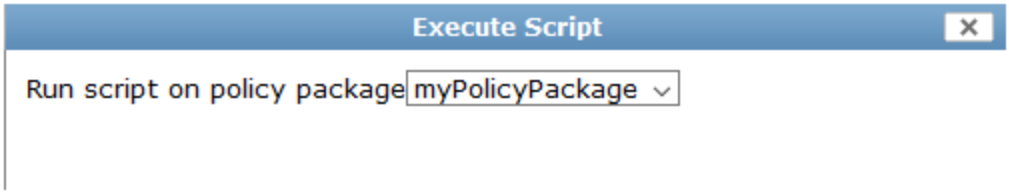
    Do not import the `config-system-session-helpers` script. For the script target, select **Policy Package, ADOM Database**.

    Ensure you check for error messages that FortiConverter inserted as comments and make any required corrections. For more information, see To troubleshoot script import and execution errors on page 74.
15. Run each imported object script. For **Run script on**, select **Policy Package, ADOM Database**. Correct any errors that prevent the script from executing. For more information, see To troubleshoot script import and execution errors on page 74.

    If there are many address objects, you import several scripts because the address file is indexed to keep the files at a manageable size. For more information, see Working with object output in indexed files on page 77.
16. Before you run the policy scripts, create new policy packages that correspond to each policy package folder in `<domain_name>\FMGR\Policy`. On the Policy & Objects tab, right-click on the default policy package and choose **Policy Package Create New**. Clear the **Clone Policy Package** option.



    Because global polices and objects were assigned to all policy packages in this ADOM, they are automatically part of each new policy package. The next import task adds the domain-level policies.
17. On the Device Manager tab, run each imported policy script. For **Run script on**, select **Policy Package, ADOM Database**. When you are prompted for a policy package, select the name of the appropriate package, which you created earlier.

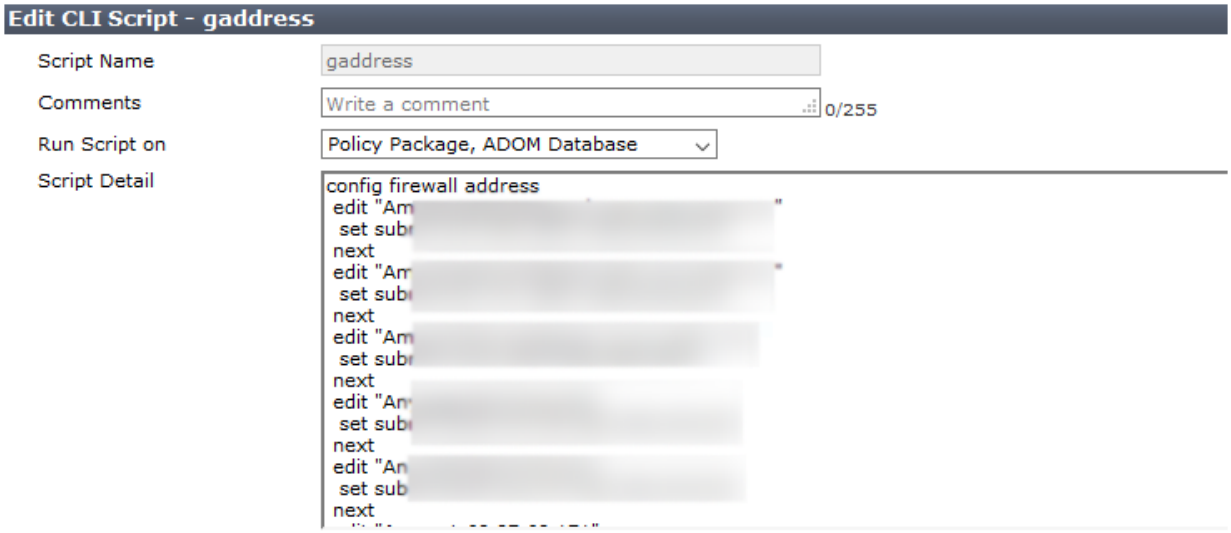


    Correct any errors that prevent the script from executing. For more information, see To troubleshoot script import and execution errors on page 74.

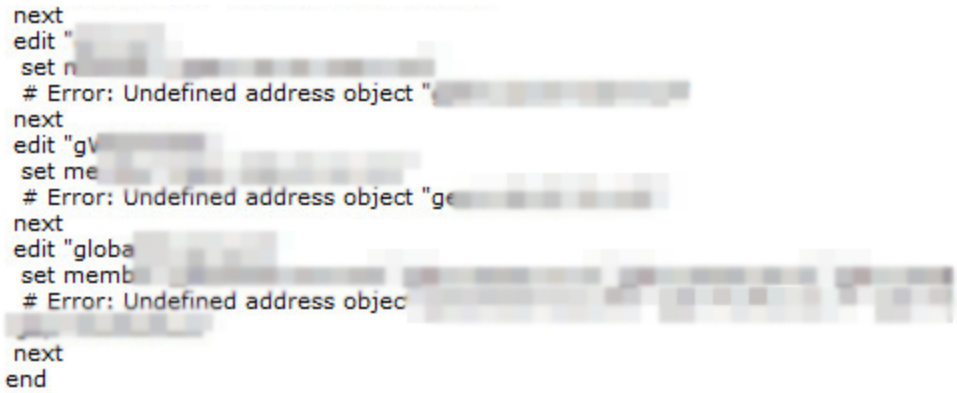
To troubleshoot script import and execution errors

FortiConverter inserts any error messages in output scripts as comments.

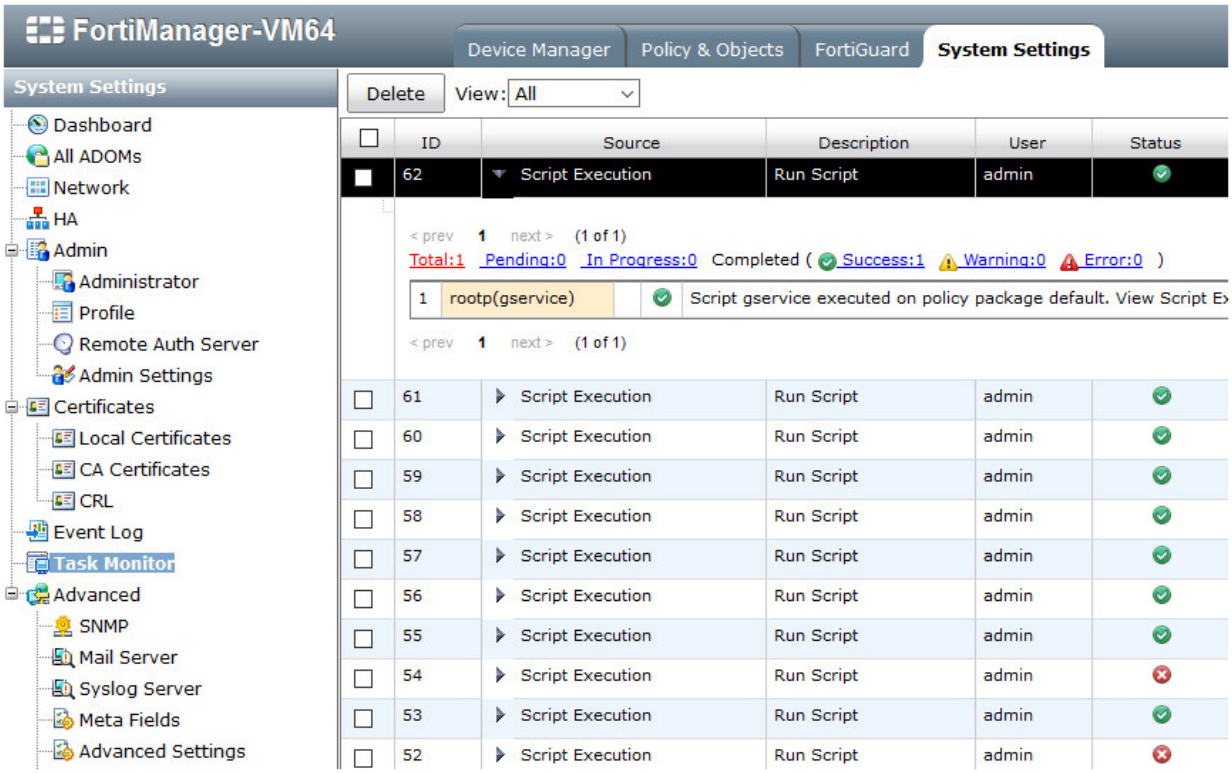
In some cases, the script cannot run unless you edit it to correct the errors. Double-click the name of the script in the list of scripts to edit it.



In the following example, the address objects that generate the errors are assigned using the global objects and can be ignored.



If an error occurs during script execution, go to **System Settings > Task Monitor** to view the error message and identify the error. Look for "Failed to commit to DB" in the task information.



Unlike a FortiGate import, which creates an object up to the point of failure, FortiManager creates no objects or policies if the script execution fails.

If you identify the cause, correct it in your script.

For example, the following error was generated by a firewall policy that contained both IPv4 and IPv6 objects, which FortiOS does not support and FortiConverter did not correct.

```
Failed to commit to DB, reason(command(set global header policy.1073741852:dstaddr "IP-1[redacted]" "IP-200[redacted]3")
Running script(gpolicy) on DB failed
------- The end of log ----------
```

Another example of a script execution error generates the following message:

```
edit "Con[redacted]
Failed to commit to DB, reason(syntax error)
Running script(address1) on DB failed
------- The end of log ----------
```

To resolve the error, determine which object precedes the error, locate it in the script, and correct any configuration errors. In this example, the configuration does not specify the subnet. If an object you do not want to use generates the error, you can delete it from the script or use # (hash) at the start of the appropriate lines to convert them to comments. Then, try to run the script again. Repeat the troubleshooting process until the script execution is successful.

If there is no obvious error in the output, try dividing the script into two smaller scripts. If only one script runs successfully, you have narrowed the focus of your troubleshooting to the content of the failed script. To divide a script, right-click it and select **Clone**. Using the policy numbers to determine and keep track of which policies you delete, edit the files so that they each contain a different section of the script. Then, run both scripts.

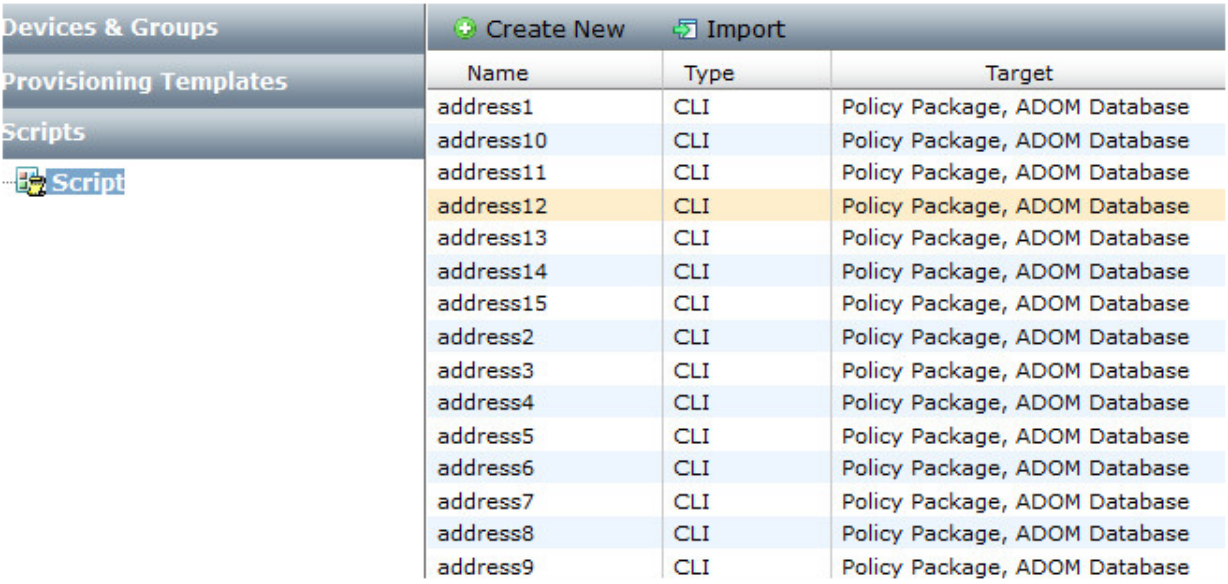
Dividing scripts into two or more smaller scripts is also useful if you suspect the length of a script is causing the execution to fail. Scripts that are too long fail without generating an error message.

In some cases, if a script fails, Fortinet recommends that you create a new script instead of editing or deleting it, because sometimes files can remain after you delete it. If you preserve the failed script, you can review it and the error it generates later. In the following example, the following `config user server` objects took several attempts to run successfully.

service1	CLI	Policy Package, ADOM Database
service2	CLI	Policy Package, ADOM Database
session-helper	CLI	Device Database
user-servera	CLI	Policy Package, ADOM Database
user-serverb	CLI	Policy Package, ADOM Database
user-serverc	CLI	Policy Package, ADOM Database

Working with object output in indexed files

In some cases, output files are split into smaller, indexed files to make it easier to import them.



If a configuration contains nested groups, script execution can fail because groups defined in one file are dependent on groups defined in another file.

If a script fails because of a missing dependency, remove the object that causes the failure. When you have finished importing the scripts for the object type, delete the script you edited and import it again. Then, run the script without editing it. Because the dependency is now included in the imported configuration, the unedited script can execute successfully.

Understanding your new configuration

To help you understand your new configuration, review the differences between FortiGate and FortiManager and your previous firewall.

Alcatel-Lucent differences

Conversion support

FortiConverter supports the conversion of the following Alcatel-Lucent Brick features:

- Interfaces
- Host Groups
- Service Groups
- Zone Brick Rulesets

Fortinet plans to support for the following Lucent features in a future FortiConverter release:

- NAT
- Schedule
- VPN
- Hosts Behind Zone

Address and address group configuration

- Lucent host addresses are mapped to FortiGate addresses.
- Lucent host groups are mapped to FortiGate address groups.
- Virtual Brick Addresses (VBA) are not supported.

Interface configuration

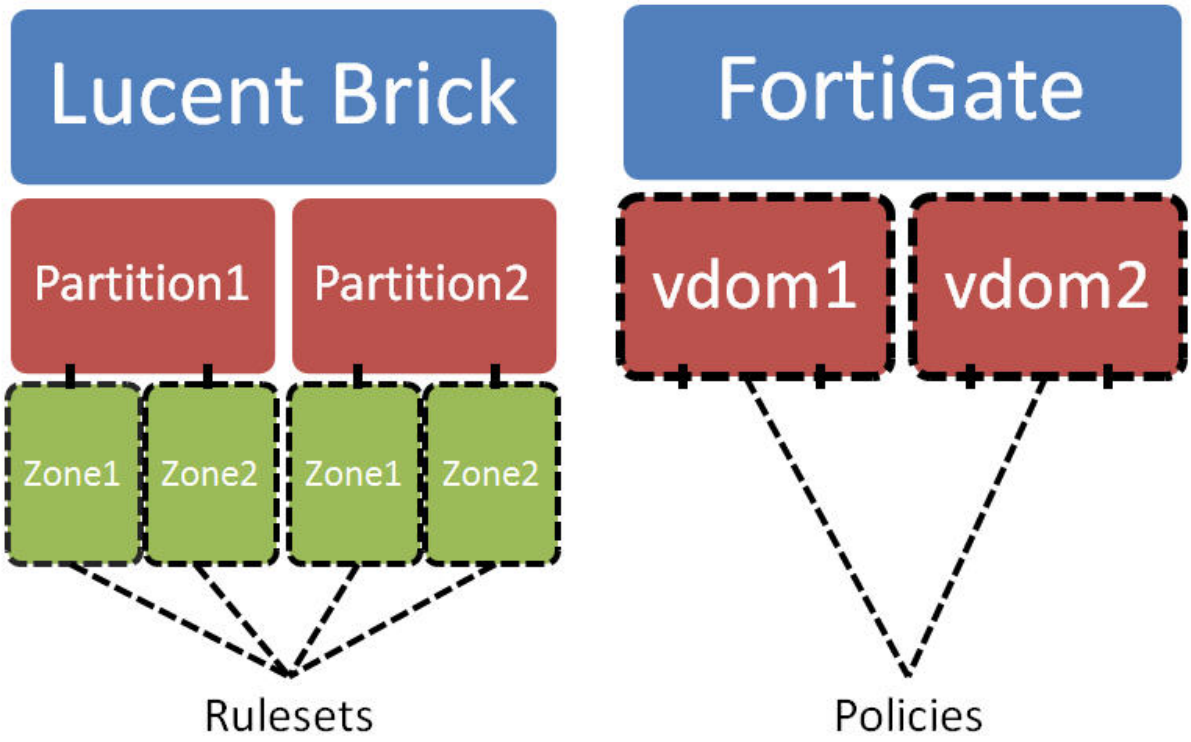
- FortiConverter assigns default VLAN configuration directly to physical interfaces.
- FortiConverter considers all VLANs named “*” or “Port Default”to be the default VLAN configuration.
- Domain Addresses are not supported.

Service and Service Group configuration

- Lucent Service Groups are mapped to FortiGate Service Groups.
- Lucent service “*” maps to FortiGate service “any”.

Policy configuration

Lucent Brick Zone Rulesets operate at the zone level, which has no direct equivalent in FortiGate. Zone rulesets need to be translated into equivalent FortiGate policies.



FortiConverter translates Lucent Brick rules by separating traffic into two categories: inter-partition and intra-partition.

- **Inter-partition traffic** behaves like inter-VDOM traffic, and is simple to convert to FortiGate policies.
- **Intra-partition traffic** is more complicated to convert because multiple zone rules can be applied.

FortiConverter handles the inter-partition traffic by creating a general policy for each rule.

FortiConverter handles the intra-partition traffic by looking for all matches between two zone rulesets. FortiConverter looks at 3 fields: source, destination, and service. All 3 fields must overlap for the rules to match. FortiConverter creates a policy for each match using the intersection of each field.

The action of the rules determines the action of the converted policy, as shown in the following table:

Rule 1	Rule 2	Policy
Pass	Pass	Accept
Pass	Drop	Deny
Drop	Pass	Deny
Drop	Drop	Deny

Inter-partition Deny policies have higher priority than intra-partition policies, while inter-partition Accept policies have lower priority than intra-partition policies.

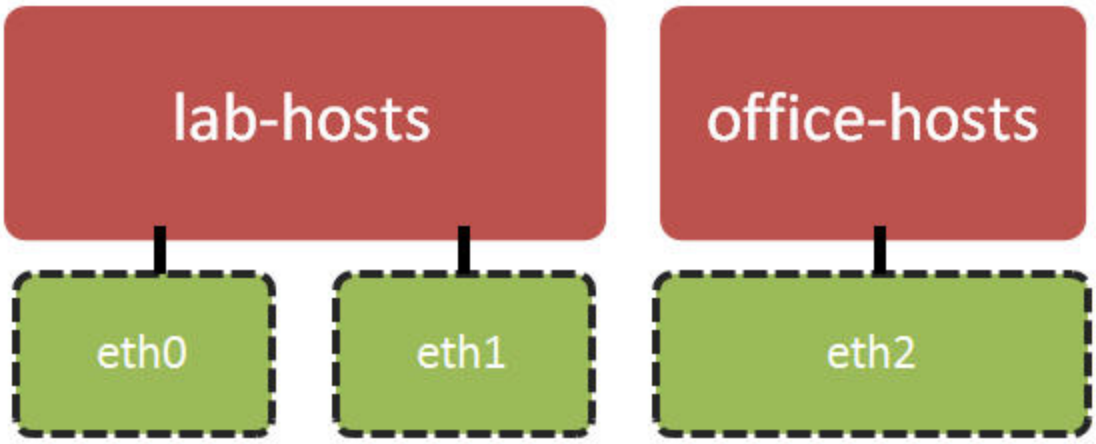
Lucent default ruleset “firewall” is currently unsupported.

VDOM configuration

- Lucent partitions map to FortiGate VDOMs.
- VDOM names are limited to 11 characters. FortiConverter truncates longer names to 11 characters.
- Lucent partition “*Default” maps to the FortiGate root VDOM.

Example conversion

The following block diagram and tables illustrates a Lucent configuration with 2 partitions and 3 zones.

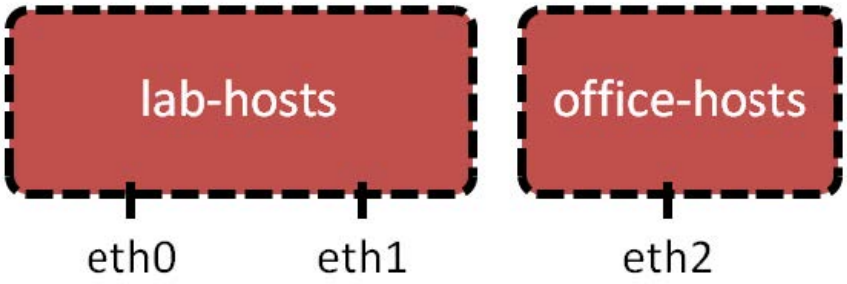


Zone eth0 Ruleset					
Rule Num	**Direction**	**Source**	**Destination**	**Service**	**Action**
1000	Out	192.168.1.15	172.30.10.1/24	*	Drop
1001	Both	192.168.1.0/24	172.30.10.1/24	*	Pass

Zone eth1 Ruleset					
Rule Num	**Direction**	**Source**	**Destination**	**Service**	**Action**
1000	In	*	172.30.10.5 - 172.30.10.20	TCP	Pass
1001	Both	192.168.1.132	172.30.10.9	*	Pass

Zone eth2 Ruleset					
Rule Num	**Direction**	**Source**	**Destination**	**Service**	**Action**
1000	Both	*	10.10.15.0/24	HTTP	Pass

This Lucent configuration creates the following FortiGate configuration. Inter-partition rules are in **bold**.



VDOM lab-hosts Policies						
Policy Num	**Src Interface**	**Dst Interface**	**Source**	**Destination**	**Service**	**Action**
10000	**eth0**	**any**	**192.168.1.15**	**172.30.10.1/24**	*	**Deny**
10001	eth0	eth1	192.168.1.0/24	172.30.10.5 - 172.30.10.20	TCP	Accept
10002	eth0	eth1	192.168.1.132	172.30.10.9	*	Accept
10003	**eth0**	**any**	**192.168.1.0/24**	**172.30.10.1/24**	*	**Accept**
10004	any	eth0	192.168.1.0/24	172.30.10.1/24	*	Accept
10005	eth1	eth0	192.168.1.132	172.30.10.9	*	Accept
10006	**eth1**	**any**	**192.168.1.132**	**172.30.10.9**	*	**Accept**
10007	**any**	**eth1**	**192.168.1.132**	**172.30.10.9**	*	**Accept**

VDOM office-hosts Policies						
Policy Num	**Src Interface**	**Dst Interface**	**Source**	**Destination**	**Service**	**Action**
10000	**any**	**eth2**	**any**	**10.10.15.0/24**	**HTTP**	**Accept**
10001	**eth2**	**any**	**10.10.15.0/24**	**any**	**TCP**	**Accept**

Check Point differences

General

- FortiGate's `set allowaccess` command for interfaces does not exist on Check Point. Because FortiGate requires this setting, FortiConverter by default enables all services for interfaces.
- The interface "Lead to Internet" is a default static route on FortiGate.

Schedule configuration

FortiConverter converts "Day in month" time schedules to FortiGate one-time schedules. It converts "Day in week" and "None" schedules to recurring schedules.

You assign a year range for the "Day in month" schedule. If the specified day does not exist for a certain month, FortiConverter does not generate the one-time schedule for that month.

For example, the Check Point firewall's "Day in month" time schedule has the following parameters for each year:

```
Month: Jan/March/Sept.
Day: 1, 5, 31
Start and end time: 0:00 to 10:00
```

If you select `1` for **Convert 'Day in Month' to 'One Time Schedule' for next x years** in the FortiConverter conversion wizard and the current year value for the PC running FortiConverter is 2013, the wizard generates the following output for FortiGate one-time schedules:

```
From 0:00 Jan/1/2013 To 10:00 Jan/1/2013
From 0:00 Jan/5/2013 To 10:00 Jan/5/2013
From 0:00 Jan/31/2013 To 10:00 Jan/31/2013
From 0:00 Match/1/2013 To 10:00 Match/1/2013
From 0:00 Match/5/2013 To 10:00 Match/5/2013
From 0:00 Match/31/2013 To 10:00 Match/31/2013
From 0:00 Sept./1/2013 To 10:00 Sept./1/2013
From 0:00 Sept./5/2013 To 10:00 Sept./5/2013
```

Notice that FortiConverter does not generate a Sept. 31 schedule.

NAT and policy configuration

FortiConvertersupports the conversion of the following NAT types:

- Hide NAT
- Static NAT
- Manual NAT

FortiConverter does not convert NAT global properties.

VPN configuration

- Check Point does not configure VPN within a firewall rule. When FortiConverter converts the configuration to FortiGate, it generates several VPN policies from non-"Lead to Internet" interfaces to the "Lead to Internet" (default route) interface.
- After FortiConverter converts the VPN configuration, the VPN policy's destination interface refers to the "Lead to Internet" interface.

  If you changed the default route's egress interface, you may need to update the VPN/Policy configuration manually.

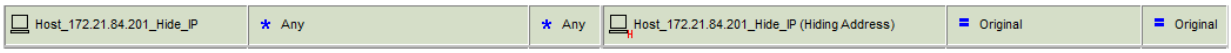
Service objects

Unlike FortiGate service objects, Check Point service objects have a protocol type attribute. FortiGate uses a session helper object to provide the same functionality as the service objects with a protocol type attribute.

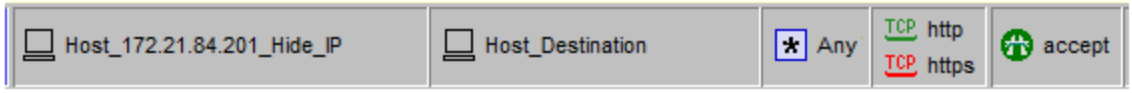
Check Point NAT merge examples

Host address hides behind IP

The source configuration hides the host address object `Host_172.21.84.201_Hide_IP` behind the IP address `210.61.82.139`.



It also has a firewall rule that matches the object to source addresses.



FortiConverter captures the hide NAT IP address `210.61.82.139` in an IP pool:

```
edit "ippool-210.61.82.139"
   set endip 210.61.82.139
   set startip 210.61.82.139
   set type overload
next
```

FortiConverter also creates a central NAT object that uses the IP pool:

```
edit 3
   set orig-addr "Host_172.21.84.201_Hide_IP"
   set dst-addr "all"
   set nat-ippool "ippool-210.61.82.139"
next
```

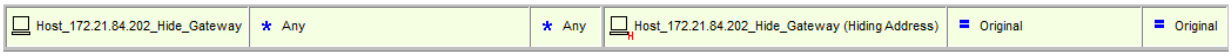
FortiConverter converts the firewall policy to the following policy, for which central NAT is enabled (`set nat enable`):

```
edit 10001
   set srcintf "port2" (generated from route information)
```

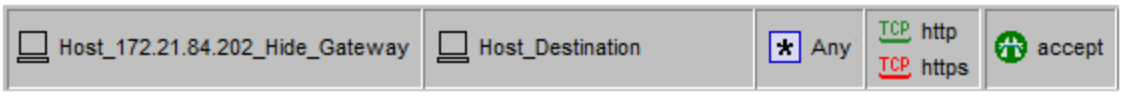
```
    set dstintf "port1" (generated from route information)
    set srcaddr "Host_172.21.84.201_Hide_IP"
    set dstaddr "Host_Destination"
    set service "http" "https"
    set schedule "always"
    set logtraffic all
    set status enable
    set action accept
    set comments "Example of address hides behind IP."
    set global-label "FW1"
    set nat enable
next
```

Host address hides behind gateway

The source configuration hides the host address object `Host_172.21.84.202_Hide_Gateway` behind the gateway.



It also has a firewall rule that matches the object to source addresses.



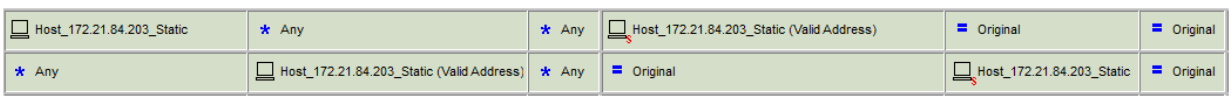
FortiConverter generates the following policy, for which NAT is enabled (`set nat enable`). However, because it does not specify an IP pool, the source address uses the interface IP address to perform NAT:

```
edit 10002
    set srcintf "port2"
    set dstintf "port1"
    set srcaddr "Host_172.21.84.202_Hide_Gateway"
    set dstaddr "Host_Destination"
    set service "http" "https"
    set schedule "always"
    set logtraffic all
    set status enable
    set action accept
    set comments "Example of address hides behind gateway."
    set global-label "FW1"
    set nat enable
next
```

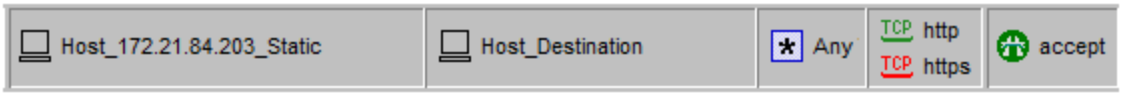
When a policy has NAT enabled, it attempts to match a source address to a VIP object. If it finds a match, it performs static NAT using the VIP object. If it does not find a match, it uses the interface IP address. (See Address with static NAT matches policy source address for an example with a VIP object.)

Address with static NAT matches policy source address

The source configuration static NAT settings translate the IP address of the host address object `Host_172.21.84.203_Static` to `210.61.82.160`.



It also has a firewall rule that matches the object to source addresses.



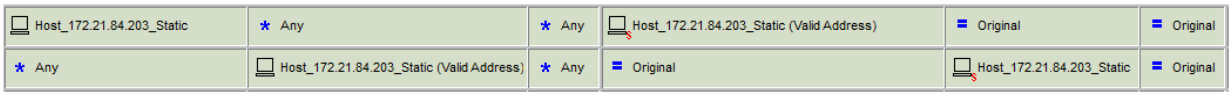
FortiConverter generates the following VIP object and policy:

```
edit "vip-Host_172.21.84.203_Static"
   set extip 210.61.82.160
   set mappedip 172.21.84.203
   set extintf port1
   set nat-source-vip enable
next


edit 10003
   set srcintf "port2"
   set dstintf "port1"
   set srcaddr "Host_172.21.84.203_Static"
   set dstaddr "Host_Destination"
   set service "http" "https"
   set schedule "always"
   set logtraffic all
   set status enable
   set action accept
   set comments "Example of address with static NAT in source address."
   set global-label "FW1"
   set nat enable
next
```

When a policy has NAT enabled, it attempts to match a source address to a VIP object. If it finds a match, it performs static NAT using the VIP object. If it does not find a match, it uses the interface IP address. (See Host address hides behind gateway for an example without a VIP object.)

Address with static NAT matches policy destination address

Like the example where static NAT matches the policy destination address, the source configuration static NAT settings translate the IP address of the host address object `Host_172.21.84.203_Static` to `210.61.82.160`.



It also has a firewall rule that matches the object to destinations.

FortiConverter generates the following VIP object and policy. The policy replaces the destination address with the VIP object:

```
edit "vip-Host_172.21.84.203_Static"
   set extip 210.61.82.160
   set mappedip 172.21.84.203
   set extintf port1
```

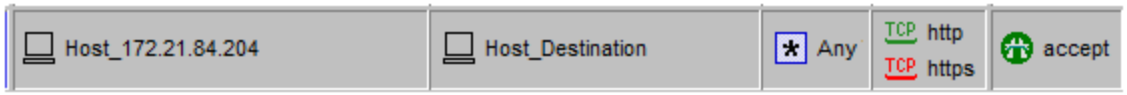
```
   set nat-source-vip enable
next


edit 10004
   set srcintf "port1"
   set dstintf "port2"
   set srcaddr "Host_Source"
   set dstaddr "vip-Host_172.21.84.203_Static"
   set service "http" "https"
   set schedule "always"
   set logtraffic all
   set status enable
   set action accept
   set comments "Example of address with static NAT in destination address."
   set global-label "FW1"
next
```

In this case, the destination address is used directly.

Manual NAT rule matches policy source address with one-to-one mapping

A source configuration has a manual NAT rule that translates a source address:

It also has the following firewall rule:



This configuration is a one-to-one mapping because both the original address and translated address are host addresses.

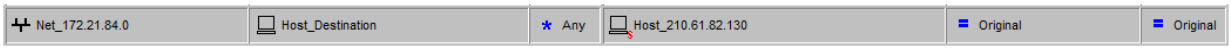
FortiConverter generates the following IP address pool and policy. NAT is enabled for the policy and it uses the pool to perform NAT:

```
edit "ippool-210.61.82.160"
   set endip 210.61.82.160
   set startip 210.61.82.160
   set type overload
next


edit 10005
   set srcintf "port2"
   set dstintf "port1"
   set srcaddr "Host_172.21.84.204"
   set dstaddr "Host_Destination"
   set service "http" "https"
   set schedule "always"
   set logtraffic all
   set status enable
   set action accept
   set comments "Example of one to one source NAT rule ."
   set global-label "FW1"
   set nat enable
```

```
    set poolname "ippool-210.61.82.160"
next
```

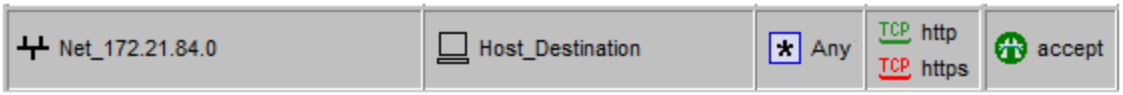
Manual NAT rule matches policy source address with many-to-one mapping

A source configuration has a manual NAT rule that translates a source address:



`Net_172.21.84.0` is a network object with the IP address `172.21.84.0/24`.

The configuration also has the following firewall rule, which matches the object to source addresses:



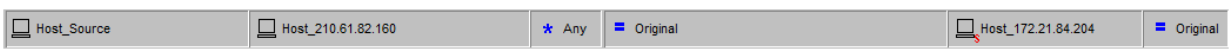
FortiConverter converts many-to-one rules to an IP pool.

For this configuration, FortiConverter generates the following IP pool, central NAT object, and policy:

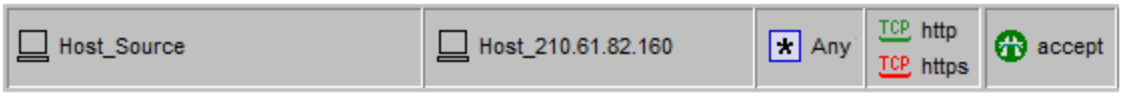
```
edit "ippool-210.61.82.130"
   set endip 210.61.82.130
   set startip 210.61.82.130
   set type overload
next


edit 2
   set orig-addr "Net_172.21.84.0"
   set dst-addr "Host_Destination"
   set nat-ippool "ippool-210.61.82.130"
next


edit 10006
   set srcintf "port2"
   set dstintf "port1"
   set srcaddr "Net_172.21.84.0"
   set dstaddr "Host_Destination"
   set service "http" "https"
   set schedule "always"
   set logtraffic all
   set status enable
   set action accept
   set comments "Example of one to many source NAT."
   set global-label "FW1"
   set nat enable
next
```

Manual NAT rule matches policy destination address

A source configuration has a manual NAT rule that translates a destination address:



It also has the following firewall rule:



FortiConverter generates the following VIP object and policy:

```
edit "vip-Host_210.61.82.160"
   set extip 210.61.82.160
   set mappedip 172.21.84.204
   set extintf any
   set nat-source-vip enable
next


edit 10007
   set srcintf "port1"
   set dstintf "port2"
   set srcaddr "Host_Source"
   set dstaddr "Host_172.21.84.204"
   set service "http" "https"
   set schedule "always"
   set logtraffic all
   set status enable
   set action accept
   set comments "Example of one to one destination NAT rule ."
   set global-label "FW1"
next
```

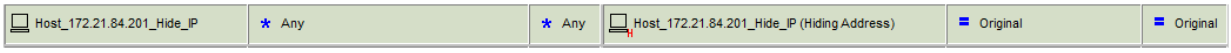
The translated address is used as the destination address because it is in internal network.

NAT rule and policy addresses do not match: Source address of the policy contains the NAT object

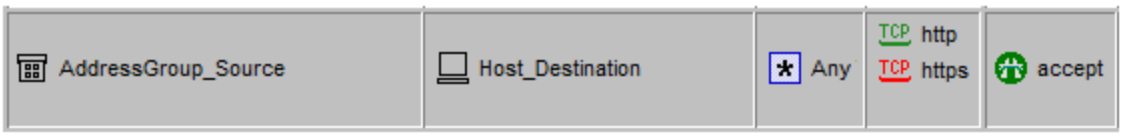
In some cases, the address field of a policy contains more than one address object. If NAT is enabled for an address object, FortiConverter calculates the overlap of the address object and the policy address. It then generates an independent policy ahead of the original policy.

FortiConverter uses this mechanism for all NAT types, including Hide NAT and Static NAT.

A source configuration has a host address object `Host_172.21.84.201_Hide_IP` that hides behind the address `210.61.82.139`.



It also has the following firewall rule:



`AddressGroup_Source` is a group that contains the members `Host_172.21.84.201_Hide_IP`, `Host_Member1`, and `Host_Member2`.

FortiConverter generates the following configuration, which converts the address `210.61.82.139` to an IP pool, and includes a central NAT object that uses the IP pool and a NAT-enabled policy:

```
edit "ippool-210.61.82.139"
   set endip 210.61.82.139
   set startip 210.61.82.139
   set type overload
next

edit 3
   set orig-addr "Host_172.21.84.201_Hide_IP"
   set dst-addr "all"
   set nat-ippool "ippool-210.61.82.139"
next

edit 00110008
   set srcintf "port2"
   set dstintf "port1"
   set srcaddr "Host_172.21.84.201_Hide_IP"
   set dstaddr "Host_Destination"
   set service "http" "https"
   set schedule "always"
   set logtraffic all
   set status enable
   set action accept
   set global-label "MTKFW1"
   set nat enable
next

edit 10008
   set srcintf "port2"
   set dstintf "port1"
   set srcaddr "AddressGroup_Source"
   set dstaddr "Host_Destination"
   set service "http" "https"
   set schedule "always"
   set logtraffic all
   set status enable
   set action accept
   set comments "Example of name overlap in source address."
   set global-label "FW1"
next
```

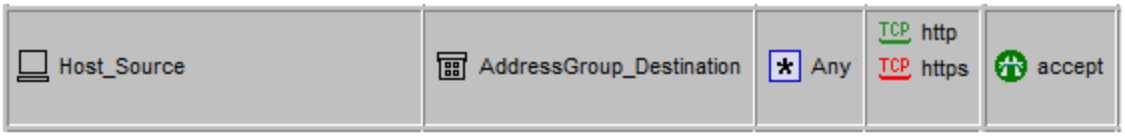
Policy 10008 is converted directly from the original firewall rule. Policy 0011008 is a copy of policy 10008 that specifies `Host_172.21.84.201_Hide_IP` as the source address and performs the hide NAT.

NAT rule and policy addresses do not match: Destination address of the policy contains the NAT object

A source configuration has a host address object `Host_172.21.84.203_Static` that Static NAT translates to `210.61.82.160`.

Host_172.21.84.203_Static	Any	Any	Host_172.21.84.203_Static (Valid Address)	Original	Original
Any	Host_172.21.84.203_Static (Valid Address)	Any	Original	Host_172.21.84.203_Static	Original

It also has the following firewall rule:



`AddressGroup_Destination` is a group that contains the members `Host_172.21.84.203_Static`, `Host_Member3`, and `Host_Member4`.

FortiConverter generates the following VIP object and NAT policy:

```
edit "vip-Host_172.21.84.203_Static"
   set extip 210.61.82.160
   set mappedip 172.21.84.203
   set extintf port1
   set nat-source-vip enable
next


edit 00110009
   set srcintf "port1"
   set dstintf "port2"
   set srcaddr "Host_Source"
   set dstaddr "Host_172.21.84.203_Static"
   set service "http" "https"
   set schedule "always"
   set logtraffic all
   set status enable
   set action accept
   set global-label "FW1"
next


edit 10009
   set srcintf "port1"
   set dstintf "port2"
   set srcaddr "Host_Source"
   set dstaddr "AddressGroup_Destination"
   set service "http" "https"
   set schedule "always"
   set logtraffic all
   set status enable
   set action accept
   set comments "Example of name overlap in destination address."
   set global-label "FW1"
next
```

FortiConverter converts policy 10009 directly from the original firewall rule. Policy 0011009 is a copy of policy 10009 that has the destination address `Host_172.21.84.203_Static` and performs the static NAT.

Unused VIP objects generate policy

In some cases, the final policy in an output configuration is one that FortiConverter generates from VIP objects that are not used as a destination address in at least one policy. For example:

```
edit 001
   set srcintf "port1"
   set dstintf "any"
   set srcaddr "all"
```

```
        set dstaddr "vip-Host_172.21.84.24" " vip-Host_172.21.84.25" " vip-Host_172.21.84.26"
            set service "ALL"
        set schedule "always"
        set logtraffic all
        set status enable
        set action deny
        set comments "This policy is auto-generated by FortiConverter to activate static-NAT
            VIPs that are not referenced in other policies."
    next
```

This type of policy enables the source static NAT mapping by capturing all the VIP objects that other policies do not reference.

In some conversions, FortiConverter generates more than one of this kind of policy – one for each external interface that is referenced by an unreferenced VIP object.

Cisco IOS, PIX or ASA differences

General

- FortiGate's `set allowaccess` command for interfaces does not exist on Cisco firewalls. Because FortiGate requires this setting, FortiConverter enables all services for interfaces by default.
- Cisco `object-group` objects have two types of service definitions. Because FortiGate services have both a source and destination port, FortiConverter can only convert `service-object` items into FortiGate services. By default, it does not convert the other type of service object, defined by `port- object`. FortiConverter generates FortiGate service objects from a Cisco ACL's protocol and source/destination port.
- On Cisco IPSec VPNs, Phase 1 (ISAKMP) supports more than two types of authentication methods. FortiGate supports only two types: `pre-share` and `rsa-sig`. Therefore,you must assign methods for each VPN connection. The wizard converts Cisco EZVPN configuration to FortiGate VPN policies from the "Intranet" interface to the interface which was assigned by the `crypto map interface` command.
- FortiConverter does not support the following Cisco configuration elements:
  - Wild card netmasks for `access-list` and `object- group` objects
  - EZVPN conversion

    For example, FortiConverter does not support `crypto ipsec profile <profile-name>` and `crypto isakmp profile <profile-name>` .

NAT support

Software	Supported NAT types
IOS	Dynamic NAT and Static NAT

Software	Supported NAT types
PIX **FWSM** **ASA (8.2 and earlier)**	Dynamic NAT(NAT exemption, policy dynamic NAT, regular) Static NAT(Static NAT, Static PAT, Identity Static NAT)
ASA (8.3 and later)	Object NAT(Dynamic, Static) Twice NAT

FortiConverter does not support the following NAT features:

- ASA objects for NAT and double NAT
- Identity NAT and NAT Exemption

To reduce the number of NAT polices a conversion generates, FortiConverter does not convert Static NAT rules in which the source and mapped IPs are the same.

PIX and ASA NAT merge examples

For ASA, these examples are valid only for source configurations created using software versions 8.2.x and earlier.

Identity NAT

Dynamic NAT with ID 0 is identity NAT and specifies that the address does not need to be translated. For example:

```
nat (inside) 0 172.17.3.68 255.255.255.255
```

Currently, because FortiConverter does not merge this kind of NAT, it ignores the settings when it converts the configuration.

Static identity NAT

In the following settings, in the two static NAT settings, the real address and the mapped address are the same.

```
static (inside,outside) 200.251.129.33 200.251.129.33 netmask 255.255.255.255

static (inside,outside) 172.17.3.69 access-list inside_nat0_static

access-list inside_nat0_static extended permit ip host 172.17.3.69 object-
group Group0
```

FortiConverter does not support this kind of static NAT and it ignores the settings when it converts the configuration.

Dynamic NAT with NAT IP

A source configuration has the following dynamic NAT settings:

```
global (outside) 1 172.31.242.69 netmask 255.255.255.255

nat (inside) 1 172.17.3.120 255.255.255.255
```

It also has the following firewall rule:

```
access-list acl_inside extended permit tcp host 172.17.3.120 object-group
Group_Destination eq http

access-group acl_inside in interface inside
```

FortiConverter generates the following IP pool and NAT policy from the source configuration:

```
edit "ippool-172.31.242.69"
   set endip 172.31.242.69
   set startip 172.31.242.69
   set type one-to-one
next


edit 10001
   set srcintf "port1" (corresponds to the interface “inside”)
   set dstintf "port2" (corresponds to the interface “outside”)
   set srcaddr "h_172.17.3.120"
   set dstaddr "Group_Destination"
   set service "HTTP"
   set schedule "always"
   set logtraffic disable
   set status enable
   set action accept
   set nat enable
   set ippool enable
   set poolname "ippool-172.31.242.69"
next
```

The interface and address of the dynamic NAT matches the firewall rule, so FortiConverter inserts the IP pool into policy 10001.

Dynamic NAT with mapped IP is “interface”

A source configuration has the following dynamic NAT settings:

```
global (outside) 2 interface

nat (inside) 2 172.17.40.73 255.255.255.255
```

It also has the following firewall rule:

```
access-list acl_inside extended permit tcp host 172.17.40.73 object-group
Group_Destination eq http

access-group acl_inside in interface inside
```

FortiConverter generates the following NAT policy from the source configuration:

```
edit 10002
   set srcintf "port1"
   set dstintf "port2"
   set srcaddr "h-172.17.40.73"
   set dstaddr "Group_Destination"
   set service "HTTP"
   set schedule "always"
   set logtraffic disable
   set status enable
   set action accept
   set nat enable
next
```

The interface and address of the dynamic NAT matches the firewall rule. NAT is enabled for policy 10002, but because there is no IP pool specified, the source address uses the interface IP address to perform NAT.

Dynamic policy NAT

A source configuration has the following dynamic NAT settings, which define NAT using an access list:

```
nat (inside) 1 access-list inside_nat_outbound
```

```
access-list inside_nat_outbound extended permit tcp host 172.17.40.70 host
200.185.36.43 eq http
```

```
global (outside) 1 172.31.242.69 netmask 255.255.255.255
```

It also has the following firewall rule, which matches the NAT settings:

```
access-list acl_inside extended permit tcp host 172.17.40.70 host
200.185.36.43 eq http
```

```
access-group acl_inside in interface inside
```

FortiConverter generates the following IP pool and NAT policy from the source configuration:

```
edit "ippool-172.31.242.69"
   set endip 172.31.242.69
   set startip 172.31.242.69
   set type one-to-one
next
```

```
edit 10003
   set srcintf "port1"
   set dstintf "port2"
   set srcaddr "h-172.17.40.70"
   set dstaddr "h-200.185.36.43"
   set service "HTTP"
   set schedule "always"
   set logtraffic disable
   set status enable
   set action accept
   set nat enable
   set ippool enable
   set poolname "ippool-172.31.242.69"
next
```

The converted configuration is similar to when the source configuration specifies dynamic NAT with a NAT IP address.

FortiConverter converts the IP pool based on the dynamic NAT.

Static NAT matches policy source address

A source configuration has the following static NAT settings:

```
static (inside,outside) 200.251.129.95 172.17.60.85 netmask 255.255.255.255
```

It also has the following firewall rule:

```
access-list acl_inside extended permit ip host 172.17.60.85 object-group
Group_Destination

access-group acl_inside in interface inside
```

FortiConverter converts the static NAT rule to a VIP object and generates a NAT policy:

```
edit "vip-200.251.129.95"
   set extip 200.251.129.95
   set mappedip 172.17.60.85
   set extintf port2
   set nat-source-vip enable
next


edit 10004
   set srcintf "port1"
   set dstintf "port2"
   set srcaddr "h-172.17.60.85"
   set dstaddr "Group_Destination"
   set service "ALL"
   set schedule "always"
   set logtraffic disable
   set status enable
   set action accept
   set nat enable
next
```

The NAT-enabled policy tries to match the source address to a VIP object. If it finds a match, it performs static NAT as the VIP object specifies. Otherwise, it uses the interface IP for NAT.

Static NAT matches policy destination address

A source configuration has the following static NAT settings (which are the same as the example that matches by source address):

```
static (inside,outside) 200.251.129.95 172.17.60.85 netmask 255.255.255.255
```

It also has the following firewall rule:

```
access-list acl_outside extended permit ip any host 200.251.129.95

access-group acl_outside in interface outside
```

FortiConverter creates the same VIP object it does for the source address example, and the following NAT policy, which uses the VIP object as a destination address:

```
edit "vip-200.251.129.95"
   set extip 200.251.129.95
   set mappedip 172.17.60.85
   set extintf port2
   set nat-source-vip enable
next


edit 10005
   set srcintf "port2"
   set dstintf "port1"
   set srcaddr "all"
   set dstaddr "vip-200.251.129.95"
   set service "ALL"
   set schedule "always"
   set logtraffic disable
   set status enable
   set action accept
next
```

Static NAT that uses access list matches policy source address

A source configuration has the following settings, which define static NAT using an access list:

```
static (inside,outside) 172.31.242.69 access-list inside_nat_static
```

```
access-list inside_nat_static extended permit ip host 10.100.128.97 object-group Group_Destination
```

It also has the following firewall rule:

```
access-list acl_inside extended permit ip host 10.100.128.97 object-group Group_Destination
```

```
access-group acl_inside in interface inside
```

FortiConverter converts the static NAT settings to the following VIP object and policies:

```
edit "vip-172.31.242.69_ip"
   set extip 172.31.242.69
   set mappedip 10.100.128.97
   set extintf port2
   set nat-source-vip enable
next


edit 10006
   set srcintf "port1"
   set dstintf "port2"
   set srcaddr "h-10.100.128.97"
   set dstaddr "Group_Destination”
   set service "ALL"
   set schedule "always"
   set logtraffic disable
   set status enable
   set action accept
```

```
    set nat enable
next
```

The NAT-enabled policy tries to match the source address to a VIP object. If it finds a match, it performs static NAT as the VIP object specifies. Otherwise, it uses the interface IP for NAT.

Static NAT specified by access list matches policy source address

The following source configuration settings define static NAT using an access list (they are the same as the example where static policy NAT matches the policy source address):

```
static (inside,outside) 172.31.242.69 access-list inside_nat_static
```

```
access-list inside_nat_static extended permit ip host 10.100.128.97 object-group Group_Destination
```

It also has the following firewall rule, which matches the NAT in source address:

```
access-list acl_outside extended permit ip object-group Group_Destination host 172.31.242.69
```

```
access-group acl_outside in interface outside
```

FortiConverter creates the same VIP object it does for the source address example, and the following NAT policy, which uses the VIP object as a destination address:

```
edit "vip-172.31.242.69_ip"
   set extip 172.31.242.69
   set mappedip 10.100.128.97
   set extintf port2
   set nat-source-vip enable
next


edit 100007
   set srcintf "por2"
   set dstintf "port1"
   set srcaddr "Group_Destination"
   set dstaddr "vip-172.31.242.69_ip"
   set service "ALL"
   set schedule "always"
   set logtraffic disable
   set status enable
   set action accept
next


edit 10007
   set srcintf "port2"
   set dstintf "any"
   set srcaddr "Group_Destination"
   set dstaddr "h-172.31.242.69"
   set service "ALL"
   set schedule "always"
   set logtraffic disable
   set status enable
   set action accept
next
```

NAT rule and policy addresses do not match exactly

When a NAT rule address does not match a policy address exactly, FortiConverter calculates where the addresses intersect (overlap) and uses the result as the address for the NAT policy it generates.

NAT rule address contains policy address

For example, a source configuration includes the following dynamic NAT configuration:

```
global (outside) 1 193.205.32.10 netmask 255.255.255.255
```

```
nat (inside) 1 10.1.2.0 255.255.255.0
```

It also contains the following firewall rule:

```
access-list acl_inside extended permit tcp host 10.1.2.1 host 193.205.23.66 eq
smtp
```

```
access-group acl_inside in interface inside
```

The NAT rule address `10.1.2.0 255.255.255.0` contains the firewall rule source address `10.1.2.1`.

FortiConverter converts the source NAT and firewall rules to the following IP pool and policies:

```
edit "ippool-193.205.32.0-193.205.32.255"
   set endip 193.205.32.10
   set startip 193.205.32.10
   set type one-to-one
next

edit 10001
   set srcintf "port1"
   set dstintf "port2"
   set srcaddr "h-10.1.2.1"
   set dstaddr "h-193.205.23.66"
   set service "SMTP"
   set schedule "always"
   set logtraffic disable
   set status enable
   set action accept
   set nat enable
   set ippool enable
   set poolname "ippool-193.205.32.10"
next
```

The source address of rule 10001 is the intersection of the NAT rule and original rule, which is `"h-10.1.2.1"`.

Policy address contains the NAT rule address

A source configuration includes the following NAT settings (which are the same as the example where the NAT rule address contains the policy address):

```
global (outside) 1 193.205.32.10 netmask 255.255.255.255
```

```
nat (inside) 1 10.1.2.0 255.255.255.0
```

It also contains the following firewall rule:

```
access-list acl_inside extended permit tcp 10.1.0.0 255.255.0.0 host
193.205.23.66 eq smtp

access-group acl_inside in interface inside
```

The firewall rule source address `10.1.0.0 255.255.0.0` contains the NAT rule address `10.1.2.0 255.255.255.0`.

FortiConverter converts the source NAT and firewall rules to the following IP pool and policies:

```
edit "ippool-193.205.32.0-193.205.32.255"
   set endip 193.205.32.10
   set startip 193.205.32.10
   set type one-to-one
next

edit 00110002
   set srcintf "port1"
   set dstintf "port2"
   set srcaddr "n-10.1.2.0_24"
   set dstaddr "h-193.205.23.66"
   set service "SMTP"
   set schedule "always"
   set logtraffic disable
   set status enable
   set action accept
   set nat enable
   set ippool enable
   set poolname "ippool-193.205.32.10"
next


edit 10002
   set srcintf "port1"
   set dstintf "any"
   set srcaddr "n-10.1.2.0_16"
   set dstaddr "h-193.205.23.66"
   set service "SMTP"
   set schedule "always"
   set logtraffic disable
   set status enable
   set action accept
next
```

The policy 00110002 source address `"n-10.1.2.0_24"` is the intersection of NAT rule and firewall rule 10002.

NAT rule matches address "all" in policy

A source configuration includes the following NAT settings (which are the same as the example where the NAT rule address contains the policy address):

```
global (outside) 1 193.205.32.10 netmask 255.255.255.255

nat (inside) 1 10.1.2.0 255.255.255.0
```

It also contains the following firewall rule:

```
access-list acl_inside extended permit tcp any host 193.205.23.66 eq smtp
```

```
access-group acl_inside in interface inside
```

The source address field is "any", which contains the NAT rule.

FortiConverter converts the source NAT and firewall rules to the following IP pool and policies:

```
edit 00110003
   set srcintf "port1"
   set dstintf "port2"
   set srcaddr "n-10.1.2.0_24"
   set dstaddr "h-193.205.23.66"
   set service "SMTP"
   set schedule "always"
   set logtraffic disable
   set status enable
   set action accept
   set nat enable
   set ippool enable
   set poolname "ippool-193.205.32.10"
next


edit 10003
   set srcintf "port1"
   set dstintf "any"
   set srcaddr "all"
   set dstaddr "h-193.205.23.66"
   set service "SMTP"
   set schedule "always"
   set logtraffic disable
   set status enable
   set action accept
next
```

The policy 00110003 source address `"n-10.1.2.0_24"` is the intersection of NAT and firewall rules.

Static NAT overlaps policy destination address

A source configuration has the following settings, which define static NAT using an access list:

```
static (inside,outside) 172.31.242.69 access-list inside_nat_static
```

```
access-list inside_nat_static extended permit ip host 10.100.128.97 object-
group Group_Destination
```

It also includes the following firewall rule:

```
access-list acl_outside extended permit ip object-group Group_Destination
172.31.242.0 255.255.255.0
```

```
access-group outside in interface outside
```

The firewall rule destination address `172.31.242.0 255.255.255.0` contains the static NAT mapped IP `172.31.242.69`.

FortiConverter generates the following VIP object and policies that use the object as a destination:

```
edit "vip-172.31.242.69_ip"
   set extip 172.31.242.69
   set mappedip 10.100.128.97
```

```
    set extintf port2
    set nat-source-vip enable
next


edit 100004
    set srcintf "port2"
    set dstintf "port1"
    set srcaddr "Group_Destination"
    set dstaddr "vip-172.31.242.69_ip"
    set service "ALL"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
next


edit 10004
    set srcintf "port2"
    set dstintf "any"
    set srcaddr "Group_Destination"
    set dstaddr "n-172.31.242.0_24"
    set service "ALL"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
next
```

Static NAT overlaps address group object

A source configuration has the following settings, which define a static NAT using an access list:

```
static (inside,outside) 172.31.242.69 access-list inside_nat_static
```

```
access-list inside_nat_static extended permit ip host 10.100.128.97 object-group Group_Destination
```

The access list destination address `Group_Destination` contains two members:

```
object-group network Group_Destination
    network-object 10.255.253.0 255.255.255.0
    network-object 10.255.254.0 255.255.255.0
```

The source configuration also has a firewall rule that matches the static NAT rule and its destination is a member of the group `Group_Destination`.

```
access-list acl_inside extended permit ip host 10.100.128.97 10.255.253.0 255.255.255.0
```

```
access-group acl_inside in interface inside
```

FortiConverter generates the following NAT policy, which has the destination address `10.255.253.0 255.255.255.0`.

```
edit 10009
    set srcintf "port1"
    set dstintf "port2"
    set srcaddr "h-10.100.128.97"
```

```
    set dstaddr "n-10.255.253.0_24"
    set service "ALL"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
    set nat enable
next
```

NAT exemption

NAT exemption is a dynamic policy NAT with ID 0. In most cases, you use NAT exemption to do one of the following:

- Exempt from NAT an address that is located in a NAT rule address range.
- In environments that use NAT control to block traffic to which no NAT rule applies, to permit this type of traffic.

Exempt an address from a NAT rule

A source configuration has the following NAT exemption configuration:

```
nat (inside) 0 access-list inside_nat_exemption
```

```
access-list inside_nat_exemption extended permit ip host 172.13.100.88 object-group Group_Destination
```

It also has the following dynamic NAT rule:

```
nat (inside) 4 172.13.100.0 255.255.255.0
```

```
global (outside) 4 172.80.80.8 netmask 255.255.255.255
```

Both the NAT exemption and the dynamic NAT rule match the following firewall rule:

```
access-list acl_inside extended permit ip 172.13.100.0 255.255.255.0 object-group Group_Destination
```

```
access-group acl_inside in interface inside
```

FortiConverter generates the following policies:

```
edit 00110001
    set srcintf "port1"
    set dstintf "port2"
    set srcaddr "h-172.13.100.88"
    set dstaddr "Group_Destination"
    set service "ALL"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
next

edit 10001
    set srcintf "port1"
    set dstintf "port2"
    set srcaddr "n-172.13.100.0_24"
    set dstaddr "Group_Destination"
```

```
      set service "ALL"
      set schedule "always"
      set logtraffic disable
      set status enable
      set action accept
      set nat enable
      set ippool enable
      set poolname "ippool-172.80.80.8"
   next
```

The NAT exemption configuration generates policy 00110001 with no NAT behavior. The dynamic NAT configuration generates policy 10001, which references an IP pool. Because 00110001 comes first in the configuration, it applies to address "h-172.13.100.88" before the policy used for address "n-172.13.100.0_24" (which applies dynamic NAT) is applied.

Allowing traffic without NAT when PIX enables NAT control

When NAT control is enabled in PIX, traffic from an interface with high-level security to an interface with low-level security is not allowed if no NAT rule is configured. To allow traffic that does not require NAT, a NAT exemption is required.

A source configuration the following NAT configuration, which includes NAT control and a NAT exemption:

```
nat-control

nat (inside) 0 access-list inside_nat_exemption

access-list inside_nat_exemption extended permit ip host 172.14.100.88 object-
group Group_Destination
```

It also has the following firewall rule:

```
access-list acl_inside extended permit ip 172.14.100.0 255.255.255.0 object-
group Group_Destination

access-group acl_inside in interface inside
```

The interface security level has the following configuration:

```
nameif ethernet0 outside security0

nameif ethernet1 inside security100
```

FortiConverter generates the following policies:

```
   edit 00110002
      set srcintf "port1"
      set dstintf "port2"
      set srcaddr "h-172.14.100.88"
      set dstaddr "Group_Destination"
      set service "ALL"
      set schedule "always"
      set logtraffic disable
      set status enable
      set action accept
   next

   edit 10002
      set srcintf "port1"
      set dstintf "port2"
```

```
    set srcaddr "n-172.14.100.0_24"
    set dstaddr "Group_Destination"
    set service "ALL"
    set schedule "always"
    set logtraffic disable
    set status disable
    set action accept
    set comments "This policy is disabled as not allowed by NAT-Control."
next
```

The source interface of the firewall rule is "inside"(port1), which has security level 100. The destination interface of this firewall rule is calculated to be "outside"(port2), which has security level 0. Since "inside" has a higher security level than "outside", traffic from "n-172.14.100.0_24" to "Group_Destination" is not allowed if NAT is not configured (even if the firewall rule allows it). Only traffic from "h-172.14.100.88" to "Group_Destination" is allowed because a NAT exemption is configured for it. Since other traffic is not allowed, FortiConverter disables policy 10002, and adds a comment to show the reason.

Unused VIP objects generate policy

In some cases, the final policy in an output configuration is one that FortiConverter generates from VIP objects that are not used as a destination address in at least one policy. For example:

```
edit 001
    set srcintf "port1"
    set dstintf "any"
    set srcaddr "all"
    set dstaddr "vip- 172.21.84.24" " vip- 172.21.84.25" " vip- 172.21.84.26"
    set service "ALL"
    set schedule "always"
    set logtraffic all
    set status enable
    set action deny
    set comments "This policy is auto-generated by FortiConverter to activate static-NAT
        VIPs that are not referenced in other policies."
next
```

This type of policy enables the source static NAT mapping by capturing all the VIP objects that other policies do not reference.

In some conversions, FortiConverter generates more than one of this kind of policy – one for each external interface that is referenced by an unreferenced VIP object.

Juniper ScreenOS or Junos OS differences

VLAN logical interfaces

FortiConverter recognizes interface names starting with "vlan" as logical interfaces.

Service objects

Junos OS service objects support MS-RPS and SUN-RPC, where program-numbers (SUN) and UUID (MS) are used instead of ports. FortiOS supports this configuration using Application Control with an application override.

Example of Junos service object conversion

```
config application list
 edit "MS-ActiveDirectory"
  config entries
   edit 1
    set application 152305667
     config parameters
      edit 1
       set value "45f52c28-7f9f-101a-b52b-08002b2efabe"
      next
      edit 2
       set value "811109bf-a4e1-11d1-ab54-00a0c91e9b45"
      next
     end
    set action pass
   next
  end
 next
end

edit 10012
  set srcintf "trust"
  set dstintf "mgn"
  set srcaddr "MEI-Novi-172.24.81.0-24" "MEI-Novi-172.24.80.0-24" "MEI-Novi-
172.24.252.112-28"
  set dstaddr "MEI-WAN"
  set service "MS-ActiveDirectory"
  set schedule "always"
  set logtraffic all
  set status enable
  set action accept
  set comments "95"
  set application-list "MS-ActiveDirectory"
 next
```

NAT support

For SRX Series gateways, FortiConvertersupports the conversion of the following NAT types:

- Destination NAT
- Source NAT
- Static NAT

Palo Alto Networks OS (PAN-OS) differences

Conversion support

FortiConverter does not support the following features

- VPN
- IPv6 address ranges
- IPv6 address subnets (will be supported in a future release)
- UTM

NAT support

FortiConvertersupports the conversion of Palo Alto Rule NAT only.

Configuration notes

- PAN-OS handles NAT and firewall policies with two separate modules, while FortiGate handles NAT within its policy module. FortiConverter makes a best effort attempt to map NAT rules onto each policy during the conversion, but you should review the results for accuracy.
- FortiConverter converts PAN-OS weekly schedules to FortiGate weekday schedules that are stored in a schedule group.

SonicWall differences

Special characters

FortiGate reserves '#' (hash sign), '(', and ')' (open and close curved brackets) as special characters. You cannot use them in the configuration unless an escape sequence precedes them. FortiConverter replaces these characters with the characters: '*' (star), '[' and ']' (open and close square brackets).

Examples:

- The address book "SNWL #1" becomes "SNWL *1".
- The service book "Citrix TCP (Session Reliability)" becomes "Citrix TCP [Session Reliability]".

Address book configuration

- On FortiGate address objects do not support MAC addresses. Therefore, the wizard does not migrate SonicWall MAC addresses.
- FortiConverter generates two extra address book entries: "Any" and "_Address_Null".
  - "Any" is added because it is a default address book in SonicWall.
  - FortiConverter generates "_Address_Null" because FortiGate address groups do not allow a group without any members. Only empty address groups can refer to "_Address_Null".

Service book configuration

- FortiConverter does not migrate SonicWall service objects that are predefined on FortiGate. For example, HTTP port 80 and HTTPS port 443.

Schedule configuration

- A SonicWall schedule group can contain only one “one-time” schedule and multiple “recur” schedules. The “one-time” schedule is an implicit object that you can embed in the schedule group. Because FortiGate defines each schedule group explicitly, FortiConverter automatically generates “one-time” schedules for the SonicWall implicit schedules.
- FortiGate time schedule configuration does not support “24:00” (equal to the next day’s 00:00). It uses "00:00" instead. When FortiConverter converts a SonicWall "recur" time schedule such as “M 00:00 to 24:00”, it sets the end time to “00:00”.

Local User and User Group

- Because FortiConverter cannot parse the local user’s password string, it sets all passwords to “123456”.
- Unlike FortiConverter, SonicWall allows you to nest user groups. For example, in SonicWall, usergroup1 can be a member of usergroup1. FortiConverter removes any nested configurations.

Route configuration

- FortiConverter does not convert the VPN configuration, including a Tunnel Interface VPN (route-based VPN).
- FortiConverter does not convert automatically generated routes like connected route and host route.

Original source	Translated source	Original Destination	Translated Destination	Original Service	Translated Service
All Interface IP	X2 IP	Any	Original	Any	Original

Original source	Translated source	Original destination	Translated destination	Original service	Translated service
LAN Subnets	Original	WoW Static IP	X0 IP	SSLVPN	Original

Original source	Translated source	Original destination	Translated destination	Original service	Translated service
test_1112_grp	test_11_gw	test_12_gw	test_1211_grp	Echo	Original

Org Src	Tran Src	Org Dest	Tran Dest	Org Serv	Tran Serv
test_11_gw	test_12_gw	test_1112_grp	test_1211_grp	Echo	Original

Troubleshooting

Accessing conversion logs

In most cases, when FortiConverter has an internal problem, the application displays a message in the web UI and adds an error message to a log file.

The logs capture all the conversion steps, including initialization, parsing (two logs), conversion, and reporting.

If the log indicates that FortiConverter encountered an internal error, or for help resolving other errors, contact the FortiConverter team at fconvert_feedback@fortinet.com.

Log location

The logs are stored at the following default location (ProgramData is a hidden folder):

```
C:\ProgramData\Fortinet\FortiConverter\logs\<date>
```

where `<date>` is the day the log was generated. For example, `2016-04-25`.

Example logs

Logs are plain-text files. These examples have additional formatting to illustrate the different steps and highlight errors.

Successful Juniper ScreenOS conversion

Info:

2016-04-25 16:58:10.2853

MainWizardPanel.btnStart_Click => MainWizardPanelPresenter.Initialize => ConverterManager.MakeANewConversionJob

Start a New Conversion: Juniper

Info:

2016-04-25 16:58:17.6680

BackgroundWorker.OnDoWork => VdomWizardPresenter._vsysPhaseCallWorker_DoWork => VdomConvertJob.DoConvertForGetVDOM

Parse VDOM: C:\Users\user\Desktop\Test Case Base\ScreenOS\test_sos.txt

Info:

2016-04-25 16:58:18.8052

BackgroundWorker.OnDoWork => JuniperWizardPresenter._firstPhaseCallWorker_DoWork => ConvertJob.DoConvertForFirstPhase

Parse: C:\Users\user\Desktop\Test Case Base\ScreenOS\test_sos.txt

Info:

2016-04-25 16:58:22.7495

BackgroundWorker.OnDoWork => VdomWizardPresenter._secondPhaseCallWorker_DoWork => ConvertJob.DoConvertForSecondPhase

Convert

Info:

2016-04-25 16:58:23.6636

ConvertJob.DoConvertForSecondPhase => ConvertJob.DoConvertForThirdPhase => ConvertJob.DoConvertReportPartial

Report: FGT

Failed Cisco conversion

The error message at the end of this example log indicates that FortiConverter encountered an internal error.

Info:

2016-03-29 18:59:33.8553

MainWizardPanel.btnStart_Click => MainWizardPanelPresenter.Initialize => ConverterManager.MakeANewConversionJob

Start a New Conversion: Cisco

Info:

2016-03-29 18:59:41.3151

BackgroundWorker.OnDoWork => VdomWizardPresenter._vsysPhaseCallWorker_DoWork => CiscoConvertJob.DoConvertForGetVDOM

Parse VDOM: C:\Users\user\Desktop\test_cisco.txt

Info:

2016-03-29 18:59:48.5378

BackgroundWorker.OnDoWork => CiscoWizardPresenter._firstPhaseCallWorker_DoWork => CiscoConvertJob.DoConvertForFirstPhase

Parse: C:\Users\user\Desktop\test_cisco.txt

Info:

2016-03-29 19:00:00.0919

BackgroundWorker.OnDoWork => MainWizardPanelPresenter._secondPhaseCallWorker_DoWork => ConvertJob.DoConvertForSecondPhase

Convert root

Error:

2016-03-29 19:00:38.1278

InterfaceALL.UpdatePolicyReference => InterfaceCollection.UpdatePolicyReference => PolicyOrg.HasReferencedInterface

Reference interface failed: Object reference not set to an instance of an object.

Troubleshooting application crashes

In many cases, disabling NAT merge options can resolve an application crash that occurs during a conversion.

For example, for a Cisco PIX conversion, on the wizard's Start Option page, click **More**, and then for each type of NAT, select **Off**.

You can use the FortiConverter logs to access detailed information about the cause of a crash. See Accessing conversion logs on page 108.

High Performance Network Security